

**Figure 1. Construction of pSV.IPD Plasmid**

# Figure 2

## psv.IPUR

length: 5147 (circular)

1 TTTCGAGCTCG CCGACATTTG ATTATTGACT AGAGTCGATC GACAGCTGTG GAATGTGTGT CAGTTAGGGT GTGGAAGTC CCCAGGCTCC CCACAGAGATA  
AAGCTCGAGC GGGCTGTAAC TAATAACTGA TCTCAGTAG CTGTGACAC CTTACACAGA GTCAATCCCA CACCTTTCAG GGGTCCGAGG GGTTCCTCCTT

101 GAAGTATGCA AAGCATGCAAT CTCAAATAGT CAGCAACCAAG GTGTGGAAG TCCCCAGGCT CCCCAGCAGG CAGAACTATG CAANAACATGC ATCTCAATTA  
CTTCATACGT TTCTGACGTA GAGTTAATCA GTCTGTGGTC CACACCTTTC AGGGTCCGA GGGGTCTGCC GTCTTCATAC GTTTCGTACG TAGAGTTAAT

201 GTCAGCAACC ATAGTCCCGC CCCTAACTCC GCGCATCCCG CCCCTAACTC CGCCAGTTTC CGCCCATTCCT CCGCCTCCATG GCTGACTAAT TTTTCTTTTATTT  
CAGTCGTTGG TATCAGGGCG GGGATTGAGG CCGGTAGGGC GGGATTGAG CCGGTCAAG GCGGTAAAG GCGGGGTAC CGACTGATTA AAAAAAATAA

301 TATGCAGAG CCGAGGCGCG CTCGGCTCT GAGCTATTCC AGAAGTAGTG AGGAGGCTTT TTTTCGAGGC TAGGCTTTTG CAAAAAGCTA GCTTATCCCG  
ATACGTCTCC GGCTCCGGC GAGCGGAGA CTCGATAAGG TCTTCATCAC TCCTCCGAAA AAACCTCCG ATCCGAAAAC GTTTTTCCTAT CCATAGAGC

401 CCGGGAACG TGCATTGGAA CGCGGATTCC CCGTGCCAAG AGTGACGTAA GTACCGCTTA TAGAGCGACT AGTCCACCAT GACCGACTAC AATCCCAACG  
GGCCCTTGC ACCTAACCTT CGCCTAAGG GGCACGTTT TCACTGCAAT CATGGCGGAT ATCTCGCTGA TCATCTGGTA CTGGCTCATG TTTTGGTATG

501 TGGCCCTCG CACCCGCGAC GACGTCCTCC GGGCGGTAG CACCTCGCC CGCGCTTTCC CCGACTACCC CGCCACGCG CACACCTTCG AATAAGATG  
ACCGGAGCG GTGGGCGCTG CTGACGGGG CCGGATGCG GTGGAGCGG CGCGCAACG GCGTATGGG GCGGTGCGG GTGTGCAGC TGGCTTCAG

601 CCACATCGAG CCGGTACCG AGCTTCTCT ACTTCTCTC ACGCGCTCG GGTCTGACAT CGGAAGGTG TGGTTCGGG ACGACGGCG GCGCTTCGCG  
GGTGTAGTC GCCCAGTGGC TCGACGTTCT TGAGAAGGAG TCGCGCGAGC CCGAGCTGTA GCGCTTCCAC ACCAGCGCC TGCTCCCGG GCGTCACTG

701 GTCTGGACCA CGCGGGAGAG CGTCGAAGCG GGGCGGTGT TCGCCGAGAT CGGCCGCGC ATGCCCGAGT TGAGCGGTTC CCGCTTCGCG GCGCACTAAC  
CAGACCTGGT CGGCCTCTC GCAGTTGCG CCGCGCTTA ACGGCTCTA CCGCGCGCG TACCGCTCA ACTCCCAAG GCGCGACCG GCGTCTCTG

801 AGATGGAGG CTCCTTGGG CCGACCCGC CCAAGAGCC CGCTGTGTT TCGGCCACG TCGCGCTCTC GCGCAACAG GACCGGTGCG AGCGGCAGAG GTCCCTTCC CAGACCTTC  
TCTACCTTCC GGAGGACCG GCGGTGCGG GGTCTCTCG GCGCACCAAG GACCGGTGCG AGCGGCAGAG CCGGTTCGTG GTCCCTTCC CAGACCTTC

901 CCGCGTCTG CTCCTCGGAG TGGAGCGCG CGAGCGCGC GGGTGGCGC CTTCTCTGA GACTCCCG CCGCAAC ACCCGCTTCTA CCGAGGCTC  
CGGCGAGCAC GAGGGCTC ACCTCCGCG GCTCGCGCG CCGCACGCG CCGAGGACT CTGAGGCGC CTGAGGCGG AGGGGAGAT GCTCCGCGAG

1001 GGCTTACCG TCACCGCGA CGTCGAGTGC CCGAGGACC GCGGACCTG GTGCATGACC CGCAAGCCCG GTGCTGAGT TAACCTCTCC GCTCTTAAG  
CCGAAGTGC AGTGGCGGT GCAGTCAAG GGTCTCTG GCGCTGAG CAGTACTGG GCGTTCGGC CACGACTCA ATTGAGGAG GAGGATTTG

1101 CTATGCAATT TTATAAGACC ATGGACTTT TGCTGGCTTT AGATCCCTT AGATCCCTT GAGTTCGTTA GACGCGAGCT ACAATTAATA CATACCTTA TCTATCATAC  
GATACGTAAA AATATTCTGG TACCTGAAA ACAGCGGAAA TCTAGGGGAA CCGAAGCAAT CTTCGCTGA TGTTAATTAAT GTATTGGAAT ACATAGTATG

1201 ACATACGATT TAGGTGACAC TATAGATAAC ATCCACTTT CTTTCTCTC CACAGGTCTC CACTCCCG CACTCCCG GCGGCAAGG TAGATTTAA  
TGATATGCTAA ATCCACTGT ATATCTATTG TAGTGAAAC GGAAGAGAG GTGTCCACAG GTGAGGTCC AGGTGACGT GGAGCAAGA TAGATTAAT

1301 TTCCCGCGG ATCTCTAGA GTCACCTGC AGAGCTTC AGTGGCGCCA TGGCCCAACT TGTTTATTTC AGCTTATAAT GGTTAATAAT AAGGATAAT  
AAGGGCCCC TAGGATCT CAGCTGGAG TCTTCCAAG TACCGCGGT ACCGGTTGA ACAATAACG TCGATATTA CCAATCTTTA TTTCTTATC

Figure 2-1

1401 CATCACAAAT TTACAAAATA AAGCATTTTTT TTCACGTGCAT TCTAGTTGTG GTTTGTCCAA ACTCATCAAT GTATCTTATC ATGTCTGCAT CCAATCGAAA  
GTAGTGTTTA AAGTGTTTAT TTCGTAAAAA AAGTGACGTA AGATCAACAC CAACACGGTT TGAGTAGTTA CATAGATAG TACAGACCTA UCTAGCCCTT

1501 TTAATTCGGC GCAGCACCAT GGCCTGAAAT AACCTCTGAA AGAGGAACTT GGTAGGTAC CTTCGAGGC GGAAGAACC AGCTGTGGAA TGTGTGTATAG  
AATTAAGCG CGTCGTGGTA CCGGACTTTA TTGGAGACTT TCTCCTTCAA CCAATCCATG GAAGACTCCG CCTTCTTGG TCGACACCTT ACACACACTC

1601 TTAGGGTGTG GAAGTCCCC AGGCTCCCC GCAGGCAGAA GTATGCAAG CATGCATCTC AATAGTCAG CAACAGGTG TGGAAAGTCC CCAAGCTCCC  
AATCCACAC CTTTCAGGG TCCGAGGGT CGTCCGCTT CATACGTTTC GTACGTAGAG TTAATCAGTC GTTGTCCAC ACCTTTCAGG GGTCCGAGCG

1701 CAGCAGGCAG AAGTATGCAA AGCATGCATC TCAATTAGTC AGCAACCATTA GTCCCGCCC TAACCTCCGC CATCCCGCC CTAACTCCGC CCACTCTCAG  
GTGCTCCGTC TTCATACGTT TCGTAGCTAG AGTTAATCAG TCGTTGGTAT CAGGCGGGG AATCAGGGG GTAGGCGG CATTCAGGG GGTCAAGCGG

1801 CCAATCTCCG CCCATGGCT GACTAATTTT TTTTATTAT GCAGAGGCG AGCGCGCTC GGCTCTGAG CTATTCAGA AGTACTCAGG AGCTTTTCTT  
GGTAAGAGC GGGTACCGA CTGATTAAAA AATAAATA CGTCTCCGC TCCGCGGG CCGGAGACTC GATAAGTCT TCATCACTCC TCCGAAAAAA

1901 GGAGGCCTAG GCTTTTGCAA AAAGCTGTTA CCTCGAGCG CCGCTTAAT AAGCGCGCC ATTTAAATCC TGCAGGTAAC AGCTTGGCAG TGGCGTCTGT  
CCTCCGGATC CGAAACGTT TTTTCACAAT GGAGCTGCC GCGAATTA TCCGCGCGG TAAATTTAGG AGTCCATTG TCGAACCTG ACUGGCACCA

2001 TTTTACACGT CGTACTGGG AAAACCTGG CGTTACCCAA CTTAATCCG TTCGAGCACA TCCCCCTTC GCCAGTGC GTAAATAGCA AGAGGCCCGC  
AATGTTGCA GCACTGACC TTTTGGGACC GCAATGGTT GAATTAGCG AACCTCTGT AGGGGGAG CCGTCACCG CATTTATCGT TCTCCGCGCG

2101 ACGATCGC CTTCCCAACA GTTGGTAGC CTGAATGGC AATGGCGCT GATGCGGTAT TTTCTCTCTA CGCATCTGT CCGTATTTCA CACCGCATAC  
TGGCTAGCG GAAGGTTGT CAACGCATG GACTTACCG GATTACCGG TTACCGCGA CTAGGCCATA AAAGGAAAT GCGTAGACAC GCCATAAAGT GTGCGGTATG

2201 GTCAAAGCAA CCATAGTACG CGCCTGTAG CCGCGCATTA AGCGCGCG GTGTGTGT TACGCGCAG GTACCGCTA CACTTGCAG CCGCTACCG  
CAGTTTCGTT GGTATCATG CCGGACATC GCCGCTPAT TCGCGCCGCC CACACCACA ATGCGCTCG CACTGCGGAT GTGAACCGT GCGGATCGC

2301 CCGCTCCTT TCGCTTTCTT CCTTCTCTT CTGCGCACGT TCGCGGCTT TCCCGTCAA GCTCTAAATC GGGGCTCC TTTAGGCTC CCAATTTAGT  
GGCGGAGGAA AGCGAAGAA GGAAGGAAA GAGCGTGCA AGCGCGCAA AGGGCAGTT CGAGATTTAG CCCCAGGG AATCCCAAG GCTAAATCAG

2401 CTTTACGGCA CTTGACCCC AAAAAGTTG ATTTGGTGA TGGTTCAGT AGTGGGCCAT CGCCTGATA GACGTTTCTT CGCCCTTGA CTTTUGAGTC  
GAAATGCCG TGAGCTGGG TTTTGTGAAC TAAACCACT ACCAAGTCA TCACCGGTA GCGGACTAT CTGCCAAAA GCGGAAACT GCAACCTCAG

2501 CAGCTTCTT AATAGTGGAC TCTTGTCCA AACTGGAACA AACTCAACC CTATCTCGG CTATCTTTT GATTTATAAG GATTTTGGC GATTTTGGC  
GTCAAGAAA TTATCACCTG AGACAAGT TTGACCTGT TGTAGTTGG GATAGAGCC GATAAGAAA CTAATATTC CTAACACCG CTAAGGCCCG

2601 TATTTGTTAA AAATGAGCT GATTTAACAA AAATTTAAC CGAATTTTAA CAAATATTA ACCTTTACAA TTTTATGTG CACTCTCAGT ACAATCTGCT  
ATAACCAAT TTTTACTCGA CTAATTTGTT TTTAATGCT CTTAATGCT GCTTAAAT GTTTTATAAT TGCAATGTT AAATACCAC GTGAGAGTCA TGTTAGACAA

2701 CTGATCGCG ATAGTTAAG CAACTCCGT ATCGTACGT GACTGGTCA TGGCTGCGC CCGACACCG CCAACACCG CTGACGCGC CTGACGCT  
GACTACGGG TATCAATTG GTTAGGCGA TAGCATGCA CTGACCCAGT ACCGACCGG GGTGTGGG GACTGCGCG GACTGCGCGA

2801 TGTCTGCTC CGGCATCCG TTACAGACAA GCTGTGACCG TCTCCGGAG CTGCATGCT CAGAGTTT CACCTCATC ACCGAAAGC GGTACGCT  
ACAGACGAG GCGTAGGG AATGTCTGTT CGACACTGG AGAGCCCTC GAGGTACACA GTCTCCAAA GTGCGAGTAG TGGCTTTGG CACTCCCTCA

2901 ATTCTTGAAG ACGAAAGGC CTCGTGATAC GCCTATTTT ATAGTTAAT GTCATGATA TAAATGGTTTCT TTAGACCTCA GCTGACCTT TTAGAGAAA  
TAAGAACCTC TGCTTCCCG GAGCACTAT CGGATAAAA TATCCAATTA CAGTACTAT ATTTACCAAAG AATCTGCAGT CCACCTGAA AAGCCCTTT

3001 TGTGCGCGA ACCCTATTT GTTTATTTTT CTAATACAT TCAATATGT ATCCGCTCAT CCGTCAATAA CCGTCAATAA ATATTTAAAA

Figure 2-2

ACACGGCGCT TGGGATATAA CAAATAAAAA GATTATGTA ACTTTATACA TAGGCGAGTA CTCCTTATTT GGGACTATTTT ACAGACTTTT  
 3101 AGGAAGAGTA TGAGTATTCA ACATTTCCGT GTCGCCCTTA TTCCCTTTTTT TGGCGCATTTT TGGCTTCCCTG TTTTTCCTCA CCCAGAAAGG CTGCTGAAAG  
 TCCTTCTCAT ACTCATAAGT TGTAAAGGCA CAGCGGAAT AAGGAAAAA ACSCGTAAA ACSCGTAAA ACSCGTAAA GGTCTTTTCC GACCACTTTT  
 3201 TAAAAGATGC TGAAGATCAG TTGGGTGCAC GAGTGGGTTA CATCGAACTG GATCTCAACA GCGTAAAGAT CCTTGAGAGT TTTGGCCCCG AAGAAGGTTT  
 ATTTTCTAGC ACTTCTAGTC AACCCACGTG CTCACCCAAT GTAGCTTGAC CTAGAGTTGT CGCCATTCTA GGAATCTCTA AAAGCGGGGC TTCTTTGAAA  
 3301 TCCAATGATG AGCATTTTTA AAGTTCTGCT ATGTGGGCGG GTATTATCCC GTGATGACGC GGGCAAGAG CAACTCGGTC GCGCATACA CTATCTCTAG  
 AGGTTACTAC TCGTGAAAAT TTCAAGACGA TACACCGCG TACATAATAGG CACTACTCGG GCGCTTCTC GTTGAAGGAG GGTGATATGT GATTAAGATG  
 3401 AATCAGTTGG TTGAGTACTC ACCAGTACA GAAAGCATC TTACGGATGG CATGACAGTA AGAGAAATAT GCACTCCTGC CATAAGCATG ACTCATACA  
 TTACTGAACC AACTCATGAG TGGTCAGTGT CTTTTCGTAG AATGCCTACC GTACTGTCTAT TCTCTTAAAT CGTCAGGAG GTATTCGTAG TCACTATTTT  
 3501 CTGCGGCCAA CTTACTTCTG ACAACGATCG GAGGACCGAA GGAGCTAACG GCTTTTTCG ACACATGCG GGAATCATTA ACTCCCTTG ATCTTTGATA  
 GACGCCGTT GAATGAAGAC TGTGCTAGC CTCTGCTGCT COTCGATTGG CGAAAAAAC TGTGTATACC CCTAGTACAT TCAGCGGAGC TAGCAACCTT  
 3601 ACCGGAGCTG AATGAAGCCA TACCAGCA CGAGCGTGAC ACCAGATGC CAGCAGCAAT GGCACAACAG TTTCCGCAAC TATTAACCTG GAACTATCTT  
 TGGCCTCGAC TTACTTCCGT ATGGTTGCT GCTCGACTG TGGTGCTACG GTCTCGTTA CCGTGTGTG AACGCTTTG ATAAATGACC GCTTGATGAA  
 3701 ACTCTAGCTT CCGGCAACA ATTAATAGAC TGGATGAGG CCGATAAAGT TGCAGGACCA CTCTCGCGT CGGCTCTCC GGTGGCTGG TTTTATTTCTG  
 TGAGATCGAA GGGCGTTGT TAATTATCTG ACCTACTCC GCCTATTCA ACCTCTGCT GAGACGCGA CCGGGAAGG CCGACGACC AAATAACAG  
 3801 ATAAATCTGG AGCGGTGAG CGTGGTCTC GCGTATCAT TGCAGCACTG GGCAGATG GTAGCCCTC CCGTATGTA GTTATCTACA CACAGGATAG  
 TATTTAGACC TCGGCCACTC GCACCCAGAG CGCCATAGTA AGTCTGAC CCGGTCTAC CATTCGGGAG GGCATAGCAT CAATAGATGT GTTCAATCTT  
 3901 TCAGGCAACT ATGGATGAAC GAAATAGACA GATCGCTGAG ATAGTGCT CACTGATTAA GCATTTGTAA CTCTCAGACC AACTTTACTC ATATATATCTT  
 AGTCCGTTGA TACTACTTG CTTTATCTGT CTAGCACTC TATCCACGGA GTGACTAAAT CGTAAACCAAT GACACTCTGG TTTCAATGAG TATATATGAA  
 4001 TAGATTGATT TAAACTTCA TTTTAAATTT AAAAGATCT AGGTGAAGAT CCTTTTGTAT AATCTCATGA CCAAAATCC TTAACCTGAG TTTTCTCTCT  
 ATCTAACTAA ATTTTGAAGT AAAAATAAA TTTTCTAGA TCCACTCTA GAAAAACCTA TTACAGTACT GGTTTTAGGG AATTCGACTC AAAGCAAGG  
 4101 ACTGAGCGTC AGACCCGTA GAAAGATCA AAGATCTTC TTGAGATCTT TTTTCTCTG CCGTAAATCTG CTGCTTGCAG ACAAANAAG CACCTTATCT  
 TGACTCGCAG TCTGGGGCAT CTTTCTAGT TTCTCTAGA AACTCTAGA AAAAAAGAG CGCATTAGAC GACGAAGCTT TGTTTTCTTG GTTCAATCTT  
 4201 AGCGGTGGTT TGTGTCCGG ATCAGAGCT ACCAATCTT TTTCCGAGG TAACTGGCTT CAGCAGAGCG CAGATACCAA ATACTCTCT TCTACTCTAG  
 TCGCCACCAA ACAACGGCC TAGTTCTGA TGGTTGAGAA AAAGCTTCC ATTGACCGAA GTCTCTCCG GTCTATGGTT TATGACAGGA ACATCACATC  
 4301 CCGTAGTTAG GCCACCACTT CAAGAACTCT GTAGACCGG CTACATACCT CCGTCTGCTA ATCTGTCTAC CAGTGGCTGC TGGCAGTGGC GATAAGTCTT  
 GGCATCAATC CCGTGGTGAA GTTCTTGAGA CATCGTGGG GATGTATGGA GCGAGACGAT TAGGACAATG GTACCCGAG CCGTCAACCG CTATTCAGAA  
 4401 GTCTTACCG GTTGGACTCA AGAGATAGT TACCGGATAA GCGCAGCGG TCGGGCTGAA CCGGGGTGTC GTGCACACAG CCCAGCTGG AGCAAGGAG  
 CAGAATGGCC CAACCTGAGT TCTGCTATCA ATGGCTATT CCGGTGCGC AGCCGACTT GCGCCCAAG CACGTGTGTC GGTGGAAGC TGGCTTCTG  
 4501 CTACACCGAA CTGAGATACC TACAGCGTGA GCATTGAGAA AGCGCCAGC TTCCCGAAGG GAGAAAGCG GACAGGTATC CCGTAAAGCG CAGAGTCTGA  
 GATGTGGCTT GACTCTATGG ATGTGCACT CGTAATCTT TCGCGGTGCG AAGGCTTCC CTCTTCCG CTTCCCATAG GCGATTCGGC GTCCACAGCT  
 4601 ACAGGAGAGC GCACGAGGA GCTTCCAGG GGAACGCTT GGTATCTTTA TAGTCTCTC GGTTTTCCG ACCCTTGACT TGAAGCTGGA TTTTCTCTAT  
 TGTCTCTCTG CGTCTCCCT CGAAGTCCC CTTTGGGA CCATAGAAAT ATCAGGACAG CCAAGCGG TGGAGACTGA ACTCCAGCT AAAAATCTTA  
 4701 GCTCGTCAGG GGGCGGAGC CTATGGAAA ACAGCAGCAA CGCGGCTTTT TTACGGTTCC TGGCTTTTGG CTGCTCTTTT GCTCAGATCT TCTTTCTCTA  
 CAGGAGTCC CCGCGCTCTG GATACCTTTT TGGGTCTGTT GCGCCGAAA AATGCCAAG ACCGCAAAAC GACCCGAAA CCAAGGAGG

Figure 2-3

4801 GTTATCCCT GATTCTGTGG ATAACCGTAT TACCGCCTTT GAGTGAGCTG ATACCGCTCG CCGCAGCCGA ACGACCGAGC GCAGCCAGTC ACTGAGCAG  
 CAATAGGGA CTAAGACACC TATTGGCATA ATGGCGAAA CTCACTCGAC TATGGCGAGC GCGCTCGGCT TGTGGCTCG CGTCGCTCAG TCACTCGCTC  
  
 4901 GAAGCGGAAG AGCGCCCAAT ACGCAAAACG CCTCTCCCG CGCGTTGGC GATTCAITAA TCCAGCTGGC ACGACAGGTT TCCCAGCTGG AAAGCGGUA  
 CTTGCGCTTC TCGCGGGTTA TGCCTTTGGC GGAGAGGGG GCGCAACCG CTAAGTAATT AGGTCGACCG TGTGTGCCAA AGGGCTGACC TTTCGCGCGT  
  
 5001 GTGAGCGCAA CGCAATTAAT GTGAGTTACC TCACTCATTA GGCACCCAG GCTTTACACT TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGGCG  
 CACTCGCGTT GCGTTAATTA CACTCAATGG AGTGAGTAAT CCGTGGGTC CGAAATGTGA AATACGAAG CCGACATAC AACACACCTT AACACTCCCG  
  
 TATTGTTAAA GTGTGTCTT TGTGATACT GGTACTAATG CTTAATT

>length: 5147

# **Figure 3** **pSV.ID** **length: 5171 (circular)**

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1  TTCGAGCTCG CCCGACATTG ATTATTGACT AGAGTCGATC GACAGCTGTG GAATGTGTGT CACTTAGGGT GTGGAAAGTC CCCAGGCTCC CCACACAGCTA
   AAGCTCGAGC GGGCTGTAAC TAATAACTGA TCTAGCTAG CTGTGCACAC CTTACACACA GTCAATCCCA CACCTTTTCAG GGGTCGAGG GGTCTGCTCGT

101 GAAGTATGCA AAGCATGCGT CTCATTAGT CAGCAACCAG GTGTGGAAG TCCCCAGGCT CCCCAGCAGG CAGAGCTATG CAAAGCATTC CAACTCAATTA
   CTTTCATACGT TTCGTACGTA GAGTTAATCA GTCGTTGGTC CACACCTTTC AGGGTCCGA GGGTCTGCTC GTCTTCATAC GTTTCCTACG TAGACTTTAAAT

201 GTCAGCAACC ATAGTCCCGC CCCTAACTCC GCCCATCCCG CCCCTAACTC CGCCAGTTTC CGCCCATTTCT CCGCCCATTC GTCTACTAAT TTTTTCCTTAAT
   CAGTCGTTGG TATCAGGGCG GGGATTGAGG CGGGTAGGGC GGGGATTGAG CGGGTCAAG GCGGTAAAG GCGGGGTAC CGACTCATTA AAAAAAATAA

301 TATGCAGAGG CCGAGGGCGC CTCGGCCTCT GAGCTATTCC AGAAGTAGTG AGGAGGCTTT TTTGGAGGGC TAGGCTTTTG CAAAAGCTA GCTTATTCGCG
   ATACGCTCTCC GGCTCCGGCG GAGCCGGAGA CTCGATAAGG TCTTCATCAC TCCTCCGAAA AAACCTCCGG ATCCGAAAAC GTTTCCTCGAT CCAATAGGCG

401 CCGGGAACGG TGCATTGGAA CGCGGATTCC CCGTGCCAAG AGTGACGTAA GTACCGCCTA TAGAGTCTAT AGGCCACCCC CTTGGCTCTA GACAGATATA
   GGCCTTGCC ACCTAACCTT CGCCTAAGG GGCACGGTTC TCACTGCATT CATGGCGCAT ATCTCAGATA TCCGGGTGGG GAACCGAGAT CTCTCTATAT

        ^splice donor

501 AGCCTAGGAT TTTATCCCGG GTGCCATCAT GGTTCGACCA TTGAACGTGA TCCTCGCCCT GTCCCAAAAT ATGGGGAATT GCAAGACG AGACTTACG
   TCGGATCCTA AAATAGGGCG CACGGTAGTA CCAAGCTGGT AACTTGAGT AGCAGCGGCA CAGGGTTTAA TACCCCTAAC CGTTCCTTGGC TCTGGATCGG

601 TGCCTCCCG TCCAGGAACG GTTCAGTAC TTCCRAAGAA TGACCACAAC CTCTTCAGTG GAAGGTAAC AGAATCTGGT GATTATGGGT AGAAAAACT
   ACGGGAGGG AGTCTTGCG CAAGTTCATG AAGTTTCTT ACTGCTGTG GAGAAGTCAC CTTCCTATTG TCTTAGACCA CTAAATACCA TCTTTTTCGA

701 GGTTCCTCAT TCCTGAGAAG AATCGACCTT TAAAGACAG AATTAATATA GTTCTCAGTA GAGAACTCAA AGAACCACCA CGAGGAGCTC ATTTTCCTTCC
   CCAAGAGGTA AGGACTCTTC TTAGCTGGAA ATTTCTGTG TTAATTATAT CAAGAGTCAT CTCTTGAGTT TCTTTGGTGGT GCTCCTCGAG TAAAGACAGG

801 CAAAAGTTTG GATGATGCCT TAAGACTTAT TGAACAACCG GAATTGGCAA CATGGTTTGG ATAGTCGGAG GCAGTCTCTG TTAACAAGAA
   GTTTTCAAAC CTACTACGGA ATCTGGAATA ACTTGTGGC CTTAACCGTT CATTTTCATCT GTACCAAAAC TATCAGCCTC CGTCAAGACA AATGCTCTCT

901 GCCATGAATC AACGAGGCCA CTTAGACTC TTTGTGACAA GGATCATGCA GGAATTTGAA AGTGACACGT TTTTCCCAGA ANTTGATTTG GGGAAATATA
   CGGTACTTAG TTGTTCCGGT GGAATCTGAG AAACACTGTT CCTAGTACGT COTTAACCTT TCACTGTGCA AAAGGGTCT TTAACATAAC CCTTTTATAT

1001 AACCTCTCCC AGAATACCCA GCGCTCCTCT CTGAGTGCCA GGAGGAAAAA GGCATCAAGT ATAAAGTTTGA AGTCTACGAG AAGAAAGACT AACACAAGA
   TTGGAGAGG TCTTATGGGT CCGCAGGAGA GACTCCAGGT CCTCCTTTT CCGTAGTTCA TATTCAAAC TCAATGCTC TTCTTTCTGA TTGTCCTTCT

1101 TGCTTTCAAG TTCTCTGCTC CCTCCTAAA GCTATGCATT TTTATAGAC CATGGGACTT TTTCTGGCTT TAGACCCCTT TGGCTTCTT AGAAGGGA
   ACGAAAGTTC AAGAGACGAG GGGAGGATTT CGATACGTAA AAATATCTG GTACCCCTGAA AAGCACCAG AAATGSGGGA ACCGAAGCAA TCTTTGCGCG

        ^END DHER

1201 TACAATTAAT ACATAACCTT ATGTATCATA CACATAGATT TAGGTGACAC TATAGAAATA CATCCACTTT GCCCTTCTCT CCACAGTCT CACTTCAACT
   ATGTTAATTA TGATTTGGAA TACATAGTAT GTGTATCTAA ATCCACTGTG ATATCTTATT GTAGGTGAAA CCGAAAGAGA GTCTCCACA GTGAGGTCCA

1301 CAACCTGCAC TCGTTTCTAT CGATTGAATT CCCCAGGAT CCTCTAGAGT CGACCTCGAG AAGCTTGGCC GCAATGGGAC AACTTGTTTA TTGAACTTA
   GTTGACGTTG AGCAAGATA GCTAACTTA GGTGACCTC GTTGACCTG TTTCAACCTG CCGTACCGCG TTGAACAAAT AAATTCGAAAT

1401 TAATGGTTTAC AAATAAAGCA ATAGCATCAC AAATTTTACA AATAAGCAT TTTTTCCTACT GCATCTTACT TGTGGTTTGT CCAAACTCAT CAATCTTATCT

```

Figure 3-1

ATTACCAATG TTTATTTCGT TATCGTAGTG TTTAAAGTGT TTAATTCGTA AAAAAAGTGA CGTAAGATCA ACACCAACA GGTTTGAGTA GTTACATAGA  
 1501 TATCATGTCT GGATCGATCG GGAATTAATT CGGCGCAGCA CCATGGCCTG AATAACCTTC TGAAAGAGGA ACTTGGTTAG GTACCTTCCTG AGGCGGAAAG  
 ATAGTACAGA CCTAGTAGC CCTTAATTA GCGCGTGTG GTTACCGGAC TTTATTGGAG ACTTCTCCT TGAACCAATC CATGGAAGAC TCCGCTTTC  
 1601 AACCACTGT GGAATGTGTG TCAGTTAGG TGTGGAAGT CCCCAGGCTC CCGCAGGCG AGAAGTATGC AAAGCATGCA TCTCAATTAG TCAAGCAACA  
 TTGCTCGACA CCTTACACAC AGTCAATCCC ACACCTTTCA GGGTCCGAG GGTCTCTCCG TCTTCATACG TTTCTGATAGT AGAGTTAAATC ACTCTGTTCGT  
 1701 GGTGTGGAAG GTCCCAGGC TCCCAGCAG GCAGAAGTAT GCAAGCATG CATCTCAATTT AGTCAGCAAC CATAGTCCG CCCCTAACATC CCCCCATATC  
 CCACACCTTT CAGGGTCCG AGGGTCTGTC CGTCTCATY CGTTTCGTAC GTAGAGTTAA TCAGTCTGTTG GTATCAGGC GGGCATTTGAG GCGGTAGAG  
 1801 GCCCTTAAC CCGCCAGTT CCGCCCATTC TCCGCCCAT GGTGACTAA TTTTCTTTAT TTATGCGAG GCGGAGGCG CTTCCGCTTC TGAGCTATTC  
 CCGGATTGA GCGGGTCAA GCGGGTAA AGCGGGTA CCGACTGAT AAAAAAATA AATACCTCTC CGGCTCCGC GAGCGCGCAG ACTCGATAAG  
 1901 CAGAAGTAGT GAGGAGGCTT TTTTGAGGC CTAGGCTTTT GCAAAAAGCT GTTACCTCGA CCGGCGCTTT AATTAAAGCG CGCCATTTTAA ATCTTGCAG  
 GTCTTCATCA CTCTCCGAA AAAACCTCCG GATCCGAAA CGTTTTCGA CAATGGAGCT CGCGCGGAA TTAATTCCGC GCGTAAATTT TAGGAGCTCC  
 2001 TAACAGCTTG GCACTGGCGG TCGTTTACA ACGTCGTGAC TGGGAAAACC CTGCGGTAC CCAACTTAAT CGCTTGCAG CACATCCGCC CTTGCGCAAC  
 ATTGTGCAAC CGTGACCGG AGCAAAATGT TGCAGCACTG ACCCTTTTG GACCGCAATG GGTGAATTA CCGGAACGTC GTGTAGCGG GAACCGCTCG  
 2101 TGGCGTAATA GCGAAGAGGC CCGCACCGAT CGCCCTTCCC AACAGTTGCG TAGCTGAAT GCGGNAATGCG GCCTGATGCG GTATTTTCTC CTTACGCAATC  
 ACCGCATTAT CGCTTCTCCG GCGGTGGCTA GCGGGAAGG TTGTCAACGC ATCGGACTTA CGCTTACCG CCGACTACGC CATAAAAGAG GAATGCTAG  
 2201 TGTGCGGTAT TTCACACCG ATACGTCAA GCAACCATAG TAGCGGCCCT GTAGCGCGC ATTAAGCGCG GCGGTGTTG TGGTTAGCGG CAGCTGATAT  
 ACACGCCATA AAGTGTGGC TATGCAGTTT CGTTGGTATC ATCGCGGGA CATCGCGCGG TAAATCGCGG CCGCCACACC ACCAATGCGG CTTGCACTCG  
 2301 GCTACACTTG CCAGGCGCT AGCGCGCTT CTTTCCCTTC CTTTCTCGC ACGTTGCGC GCTTTCCCGG TCAAGCTTA AATCGGCAAC  
 CGATGTGAAC GGTCCGCGG TCGCGGCGG GAAAGCGAG AAGAGCGCG TCGAAGCGG CCGAAGCGG AGTTCCAGAT TTAGCGCGCG  
 2401 TCCCTTTAGG GTTCCGATT AGTGCTTTAC GGCACCTCGA CCCCCAAAA CTTGATTTTG GTGATGGTTC ACGTACTGG CCATCGCCT CATAGACCT  
 AGGGAATCC CAAGCTAAA TCACGAAATG CCGTGGAGCT GGGTTTTTTT GAATTAACC CACTAACAG TGCATCACCC GGTAGCGGA CTATCTGCA  
 2501 TTTTCGCCCT TTGACGTTGG AGTCCACGTT CTTTATATAGT GCACTCTGT TCCAAACTTG AACAACATC AACCTTATCT CCGGCTATTC TTTTGAATTA  
 AAAAGCGGA AACTGCAACC TCAGTGCAA GAATTTATCA CCGTGAACA AGGTTTGACC TTGTGTGAG TTGGGATAGA CCGCGATAAG AAAACTAAAT  
 2601 TAAGGGATT TGCGGATTC GGCCTATTG TTAATAATG AGCTGATTA ACAAAAATTT AACCGGAAT TTAACAAAAT ATTAAGCTTT ACAATTTTAT  
 ATTCCCTAAA ACGCTAAA CCGGATAACC AATTTTTTAC TCGACTAAAT TGTTTTTAAA TTGCGCTTAA AATTTCTTTA TAAATGCAAA TCTTAAAAA  
 2701 GGTGCACTCT CAGTACAATC TGCTCTGAT CCGCATAGTT AAGCCACTC CGCTATCGT ACGTACTGG GTCATGGCTG CCGCGGACA CCGCGCAACA  
 CCACGTGAGA GTCATGTTAG ACGAGACTAC GCGGTATCAA TTGCGTTGAG GCGATAGCGA TGCACTGACC CAGTACCGC GCGGGCTGT GCGCGGTTGT  
 2801 CCGCTGAGC CGCCTGACG GGTGTGCTG CTCCCGGCAT CCGCTTACAG ACAAGCTGT ACCGTCTCCG GGAGTGCAT GTGTACAGG TTTTCACTTT  
 GCGCGACTGC GCGGACTGC CCGAACAGAC GAGGCGCTA GCGGAATGTC TGTTCGACAC TGGCAGAGG CCTCGACGTA CACAGTCTCC AAAAGTGCA  
 2901 CATCACGAA ACGCGGAGG CAGTATCTT GAAGACGAAA GGGCCTCGT ATACGCCAT TTTTATAGT TAAATGATG ATAATATG TTTCTTACAG  
 GTAGTGCTT TCGCGCTCC GTCATAGAA CTCTGCTTT CCGGAGCAC TATGCGGATA AAAATATCCA AATTACAGTAT TATTAATACC AAAGAATCTG  
 3001 GTCACTGGC ACTTTTCGG GAAATGTGC CGGAACCCCT ATTTGTTTAT TTTTCTAAT ACATTCAAA ATGTATCCC TCATCAGACA ATAACTCA  
 CAGTCCACCG TGAAGGCC CTTTACAGC GCCTTGGGA TAAACAAATA AAAAGATTTA TGTAAAGTTA TACATAGG AGTACTCTGT TATTCGACT  
 3101 TAAATGCTC AATAATATG AAAAAGGAAG AGTATGAGTA TTCAACATTT CCGTGTCCG CTTATTTCCCT TTTTTCGGC ATTTTCCCTT CCTGTTTTTC  
 AATTACGAAG TTATTATAAC TTTTCTCTC TCATACTCAT AAGTTGTAAA GGCACAGCG GAATAAGGAA AAAACCGCG TAAAAACGAA GCACAAAC

Figure 3-2

3201 CTCACCCAGA AACGCTGGTG AAAGTAAAAG ATGCTGAAGA TCAGTTGGGT GCACGAGTGG GTTACATCGA ACTGATCTC AACAGCGGTA AACAGCTTTGA  
GAGTGGGTCT TTGGGACCACT TTTTCATTTTC TAGGACTTCT AGTCAACCCA CGTGCTCACC CAATGTAGCT TGACCTAGAG TTGTCCCCAT TCTAGGAAGT

3301 GAGTTTTCG CCGAAGAAC GTTTTCCAAT GATGACACT TTTAAAGTTC TGCTATGTG CGCGTATTG TCCCGTGATG ACGCCGGGCA ACAGCAACATC  
CTCAAAAGCG GGGCTTCTTG CAAAAGGTTA CTAATCGTGA AAATTTCAAG ACGATACACC GCGCATAAAT AGGCACTAC TGCGGCCCGT TCTCGTTGAG

3401 GGTCCGCGCA TACACTATTG TCAGAATGAC TTGGTTGAGT ACTCACCAGT CACAGAAAAG CATCTTACGG ATGGCATGAC AGTAAGAGAA TTATGCACTG  
CCAGCGCGT ATGTGATAG AGTCTACTG AACCAACTCA TGAGTGCTCA GTGTCTTTTC GTAGAATGCC TACCCTACTG TCATTTCTCTT AATACGTCAC

3501 CTGCCATAAC CATGAGTGT AACACTGCG CCAACTTACT TCTGACAACG ATCGGAGGAC CGAAGGAGCT AACCGCTTTT TTGACAACA TGGGGGATCA  
GACGGTATTG GTACTACTA TTGTGACGCC GGTGAATGA AGACTGTTC TAGCCTCTG GCTTCTCTGA TTGGGAAAA AACGTTCTGT ACCCCCTAGT

3601 TGTAACTCGC CTTGATCGTT GGGAAACCGA GCTGAATGAA GCCATACCAA ACGACGAGCG TGACACCACG ATGCCAGCAG CAATGGCAAC AACGTTGCGC  
ACATTGAGCG GAACTAGCRA CCCTTGGCCT CGACTTACTT CCGTATGGT TSCTGTCTGC ACTGTGTGC TACGCTGCTG GTTACCGTTG TTGCAACCGG

3701 AAACATATAA CTGGCGAAGT ACTTACTCTA GCTTCCCGC AACAAATTAAT AGACTGGATG GAGCGGGA TAAGTTGCAGG ACCACTTTCT CUCCTCGGCG  
TTTGATAATT GACCGCTTGA TGAATGAGAT CGAAGGCGG TTGTTAATTA TCTGAACCTAC CTCCGCCCTAT TTCAACGCTC TGGTGAAGAC GCGAGCGCGG

3801 TTCCGGCTGG CTGGTTTATT GCTGATAAAT CTGGAGCCGG TGAGCGGGT TCTCGGGTA TCATGTGAGC ACTGGGGCCA GATGTGAAGC CTTCCCGTAT  
AAGGCCGACC GACCAATATA CGACTATTTA GACCTGGCC ACTCGACCC AGAGCGCCAT AGTAACGTGC TGACCCCGT CTACCATTCG GGAGGCAATA

3901 CGTAGTTATC TACACGACGG GGAGTCAGG AACTATGGAT GAACGAATA GACAGATCG TGAGATAGGT GCCTCACTGA TTAAGCATTG GTAACCTGTA  
GCATCAATAG ATGTCTGCC CCTCAGTCCG TTGATACCTA CTTGTCTTAT CTGTCTAGG ACTCTATCCA CGGAGTGACT AATTCTGTAAC CATTGACACT

4001 GACCAAGTTT ACTCATATAT ACTTTAGATT GATTAAAAC TTCAATTTTA ATTTAAAAG ATCTAGGTGA AGATCTTTT TGATATATCT ATGACCAAAA  
CTGGTTCAAA TGAGTATATA TGAATCTAA CTAAATTTG AAGTAAAT TAAATTTTC TAGATCCACT TCTAGAAAA ACTATTPAGAG TACTGGTTT

4101 TCCCTTAAG TGAGTTTTCG TTCCACTGAG CGTCAGACC CGTAGAAAG ATCAAAAGAT CTCTTTTGA TCCTTTTTC CTGCGGTAA TCTGCTGCTT  
AGGGAATTGC ACTCAAAAGC AAGTGACTC GCAGTCTGG GCATCTTTC TAGTTTCTTA GAAGAACTCT AGGAAAAAAA GACGCCCATT ACACGACGAA

4201 GCAACAAAA AAACCAACCG TACCAGCGT TACGCTTTG CCGATCAAG AGCTACCAAC TCCTTTTTCG AAGTAACTG GCTTCAGCAG AGGCGAGATA  
CGTTTGTTTT TTTGGTGGG ATGGTCGCCA CCAACAAAC GGCCTAGTTC TCGATGGTTC AGAAAAAGG TTCCCATTCG CGAAGTCTC TCGCTCTAT

4301 CCAAACTACT TCCTTCTAGT GTAGCCGTAG TTAGGCCACC ACTTCAAGAA CTCTGTAGCA CCGCTACAT ACCTCGCTCT GCTAATCTG TTACCACTG  
GGTTTATGAC AGGAAGATCA CATCGGCATC AATCCGGTGG TGAAGTTCTT GAGACATCTT GCGGATGTA TGGAGCGAGA CGATTAGGAC AATGGTCAAC

4401 CTGCTGCCAG TGGGATAG TCGTGTCTTA CCGGTTGGA CTCAGACGA TAGTTACCG ATAAAGCGCA GCGTCCGGC TGAACGGGG GTTCGTGAC  
GACGACGGTC ACCGCTATT ACCGATATC AGCAGAGAAAT GGCCAAACCT GAGTTCTGCT ATCAATGGCC TATTTCCGGT CCGCAGCCCG ACTTCCCGCC CAAGCAGT

4501 ACAGCCCGC TTGGAGCGAA CGACTACAC CGAAGTGA GACTTACAG GTGAGCATTC AGAAAGCGC ACGCTTCCG AAGGAGAAA GCGGACAGG  
TCTCGGTCG AACTCGCTT GCTGATGTG GCTTACTCT ATGGATGTC CACTCGTAAC TCTTTCGGG TGCGAAGGG TTCCCTCTTT CCGCTCTGTC

4601 TATCCGGTAA GCGCAGGGT CCGAACAGGA GAGCGACGA GGGAGCTTCC AGGGGGAAC GCCTGGTATC TTTTATAGTCC TGTCCGTTT CCCCACCTCT  
ATAGGCCATT CCGCGTCCA GCCTTGTCT CTGCGTGCT CCTCGAAG TCCCTTTTC CCGACCATAG AAATATCAG ACAGCCCAA GCGTTCGAGA

4701 GACTTGAGCG TCATTTTTCG TGATGCTCGT CAGGGGGGG GAGCCTATGG AAAACGCCA GCAACGCGG CTCTTTTACGG TTCTTGGCTT TTTTCTGAGC  
CTGAACCTCG AGCTAAAAAC ACTACGACA GTCCCCCGC CTCGGATACC TTTTTCGGT CGTTCGGCCG GAAAAATGCC AAGACCCGA AAACGACCG

4801 TTTTGTCTAC ATGTCTTTTC CTGGTTATC CCTGATCT CTGGTAACG GTATTACCG CTCTGAGTGA CTTTGTAGT CTTGGGCGAG CTGAATGAGT  
AAACGAGT TACAAGAAAG GACGCAATAG GGCATTAAGA CACTATTGG CATAATGGG GAAACTACTT CGACTATGG GAGCGGCTC GATTTCTGAG

4901 GAGCGCACCG AGTCACTGAG CGAGGAAGCG GAAGAGCGC CAATACGCA ACCGCTCTC CCGCGCGT TGGCGATCTA TTAATCCAGG TGGAGAGATA

Figure 3-3



```
CTCGGGTGGC TCAGTCACTC GTCCTTCGC CTTCTGGCG GTATGCGT TGGCGGAGAG GCGCGCGCAA CCGCTAAGT AATTAGGTCC ACCGTCTCTT
5001 GGTTCCTCGA CTGGAAAGG GGCAGTGAGC GCAAGCAAT TAATGTGAGT TACCTCACTC ATTAGGCACC CCAGCTTTA CACTTTATGC TTCCGGCTCG
CCAAAGGCT GACCTTTCGC CCGTCACTCG CGTTGGTTA ATTACACTCA ATGGAGTGAG TAATCCGTGG GTCCGAAAT GTGAATATCC AAGGCCGAGC
5101 TATGTTGTGT GGAATTGTGA GCGGATAACA ATTTACACACA GGAACAGCT ATGACCAATGA TTACGAATTA A
ATACAACACA CCTTAACACT CGCTATTGT TAAAGTGTGT CCTTGTCTGA TACTGGTACT AATGCTTTAA T
>length: 5171
```

Figure 3-4

# Figure 4

## pSV.IPD

### length: 5712 (circular)

1 TTCGAGCTCG CCCGACATTG ATTATTGACT AGAGTCGATC GACAGCTGTG GAATGTGTGT CAGTTAGGGT GTGGAAGTC CCCAGGCTCC CCAGCAGGCA  
AAGCTCGAGC GGGCTGTAACT TAATAACTGA TCTCAGCTAG CTGTCGACAC CTTACACACA GTCAATCCCA CACCTTTCAG GGGTCCGAGG GGTCTCGTCCGT

101 GAAGTATGCA AAGCATGCAT CTCATTAGT CAGCAACAG GTGTGGAAG TCCCAGGGCT CCCAGCAGG CAGAAGTATG CAAAGCATGC ATCTCAATTA  
CTTCATACGT TTCGTACGTA GAGTTAATCA GTCGTTGGTC CACACCTTTC AGGGTCCGA GGGGTCTGCC GTCTTCATAC GTTTCGTAGG TAGAGTTAAT

201 GTCAGCAACC ATAGTCCCG CCCTAACTCC GCCCATCCG CCCTAACTCC CGCCAGTTC CGCCCATCT CGCCCATCT GCTCACAAT TTTTCTTATAT  
CAGTCGTTGG TATCAGGGCG GGGATTGAG GGGGTAGGC GGGGTCAAG GCGGTCAAG GCGGGGTAC GCGGGGTAC GACTGATTA AAAAAAATAA

301 TATGCAGAGG CCGAGGCCG CTCGGCTCT GAGCTATTCC AGAAGTAGTG AGGAGGCTTT TTTGGAGGCC TAGGCTTTTG CAAAAAUCTA GCTTATCTCG  
ATACGCTCTCC GGCTCCGGCG GAGCCGAGA CTCGATAAGG TCTTCATCAC TCCTCCGAAA AAACCTCCGG ATCCGAAAAC GTTTTTCAT CCAATAGGCC

401 CCGGGAACGG TGCATTGGAA CGGGATTCC CCGTGCCAAG AGTGACGTAA GTACCGCCTA TAGACGACT AGTCCACCAT GACCGAGTAC AAGCCACAGG  
GGCCCTTGGC ACGTAACCTT GCGCCTAAGG GGCACGTTTC TCACTGCAT TCACTGCAT CATGCGGAT ATCTCGCTGA TCAGGTGGTA CTGGCTCATG TTCCGGTACC

501 TCGCCCTCGC CACCGCGCAC GACGTCCTCG GGGCGGTAG CACCCTCGC CGCGGTTCG CCGACTACCC CGCCACGCG CACACCGTAG ACCAGACAGG  
ACGGGAGCG GTGGCGCTG CTGCGAGGCG CCGGCGATGC GTGGAGCGG CCGGCAAGC GGCTATGG GCGTCCGCG GTGTGGCATC TGGGCTTACG

601 CCACATCGAG CGGGTCACCG AGTGCAGA ACTCTTCTC AGCGCGTTC GGTTCGACAT CGGCAAGGTG TGGTCCCGG ACCACGCGC CGGCTTACCG  
GGTGTAGCTC GCCCAGTGGC TCGAGCTTCT TGAGAAGGAG TCGCGCGAGC CCGAGCTGTA GCGGTCCAC ACCCAGGCC TGCTCCCGG GCGCCACCGC

701 GTCTGGACCA CGCCGGAGAG CGTCGAAGCG GGGCGGTGT TCGCCGAGAT CGGCCCGCG CCGCCCGAGT TGAGCGGTTC CCGGTTCGCG GCGCACTAAC  
CAGACCTGGT GCGGCTCTC GCAGCTTCG CCGCGCTCTA AGGGCTCTA GCGGGCGCG TACCGCTCA ACTCGCAAG GCGCGACCG GCGCGACCG GTCTCTCTG

801 AGATGGAAG CCTCTGGCG CCGCACCGGC CCAAGGAGCC CGCGTGGTTC CTGGCCACCG TCGCGCTC GCGCGACCG CAGGCAAGG GTCTCGCAG  
TCTACCTTC GGAGACCG GCGGTGGCG GGTCTCTCG GGCACCAAG GACCGTGGC AGCCGAGAG CCGGTCTC GCGCGACCG GTCCCGTTC CAGACCGCTC

901 CGCGTCTGT CTCGCCGAG TGGAGCGGC CGAGCGGCC GGGTGCCG CTTCTCTGGA GACCTCCGCG CCCCGCAAC TCCCTTCTA CAGAGCGCTC  
GCGGCAGCAC GAGGGGCTC ACTCCGCG GCTCGCGG CCCCAGGCG GGAAGGACCT CTGGAGGCG CCGGTCTGG AGGGCAAGAT GCTTGGCGAG

1001 GGCTTCACCG TCACCGCGGA CGTCGAGTGC CCGAAGGACC GCGGACCTG GTGATGACC CGCAAGCCCG GTGCCAAT GGTTCGACCA TTGAACCTGCA  
CGAAGTGGC AGTGGCGGT GCAGCTCAG GGTCTCTG GCGCTGAC CAGTACTGG GCGTCTGG CCGTTCGGC CACGCTGTA CCAAGCTGGT AACTTGACCT

1101 TCGTCGCCGT GTCCCAAAAT ATGGGATTG GCAAGACCG AGACCTACCC TGGCTCCG TCGCAAGCG GTTCAAGTAC TTCCAAAGAA TGACCAACAG  
AGCAGCGGCA CAGGTTTTA TACCCCTAAC CGTCTTGGC TCTGGATGG ACGGAGGGG AGTCTTGGC CAAGTTCATG AAGTTCCTT ACTGGTGTG

1201 CTCTTCAGTG GAAGGTAAC AGAATCTGGT GATTATGGT AGGAAACCT GTTCTCCAT TCCCTTGGG CCAAGAGGTA AGGACTCTTC TTAGCTGGAA ATTCTCTGTC TAATTTATAT

1301 GTTCTCAGTA GAGAACTCAA AGAACCACCA CGAGGAGCTC ATTTCTTTCG CAAAAGTTTG GATGATGCC TAAGACTTAT TGAACACCG GAATTTGATA  
CAAGAGTCAT CTCTTGAGTT TCTTGGTGGT GCTCCTCGAG TAAAGAACG GTTTTCAAAC CTACTACGGA ATTCTGAATA ACTTCTTGGC CTTAAACCTT

1401 CTAAAGTAGA CATGGTTTGG ATAGTCGGAG GCAGTTCTGT TTACCAGGAA GGCATGAATC AACAGGCCA CTTTAGACTC TTTTGTACAA GATTTATATA  
CATTTCTATCT GTACCAACC TATCAGCCTC CGTCAAGACA AATGGTCTT CCGTACTTAG TTTGGTCCGT GGAATCTGAG AAACACTGTT CTTAGTATCT

1501 GGAATTTCAA AGTGACACGT TTTTCCCGA AATTGATTG GGGAAATATA AACCTCTCCC AGAATACCCA GCGCTCTCT CTGAGTCCA GGAATAAATA

Figure 4-1

CCTTAAACIT.T.TCACTGTGCA AAAAGGGTCT TTAACATAAC CCCTTTATAT TTGGAGAGGG TCTTATGGGT CCCGAGGAGA GACTCCAGGT CCTCCCTTTT  
 1601 GGCAATCAAGT ATAAGTTTGA AGTCTACGAG ABAGAAAGACT AACGTTAACT GCTCCCTTCC TAAAGCTATG CATTTTATATA AGACCAATGG ACITTTTGTG  
 CCGTAGTTCA TATTCAAAC TACAGATGCTC TTCTTTCTGA TTGCAATTGA CGAGGGAGG ATTTCCGATAC GTAAATAAT TCTGGTACCC TGAACACGAC  
 1701 GCTTTAGATC CCCTTGGCTT CGTTAGACG CAGCTACAAAT TAATACATAA CCTTATGTAT CATACACATA CGAITTAGGT GACACTATAG ATAAACATCA  
 CGAAATCTAG GGAACCGAA GCAATCTTG CAGATGTTA ATTATGTAT TGAATACATA GTATGTAT GCTAAATCCA CTGTGATATC TATTTGATGT  
 1801 CTTTGCCCTT CTCTCCACAG GTGTCACACT CCAGGTCCAA CTGCACCTCG GTTCTATCGA TTGAATTTCC CGGGATCCT CTAGAGTCCA CCTCCAGAA  
 GAAACCGAAA GAGAGGTGC CACAGGTGAG GGTCCAGGT GACGTGGAG CAAGATAGCT AACITTAAGGG GCCCTTAGGA GATCTCAGCT GGACCTCTTC  
 1901 CTTTCGATGC CGCATGGCC CAACCTTGTAT APTGCAGCTT ATATGTTTAA CAAATAAAGC AATAGCATCA CAAATTTTCC AATATAAGCA TTTTITTTTCCAC  
 GAAGCTACCG GCGGTACCG GTTGAACAAA TAACGTGCAA TATTACCAAT GTTATTTCG GTTATAAGTG TTTATTCCTGT TTTATAAGCT AAAAAAAGCTG  
 2001 TGCAATCTAG TTGTGTTTG TCCAAACTCA TCAATGTATC TTATCATGTC TGGATCGATC GGAATTTAAT TCGGGCGAGC ACCATGGCTT GAAATTAACCT  
 ACGTAAGATC AACACCAAC AGGTTTGAGT AGTTACATAG AATAGTACAG ACCTAGCTAG CCTTTAAATTA AGCCGCTCG TGGTACCTGA CTTTATTTGA  
 2101 CTGAAAGAGG AACTTGGTTA GGTACCTTCT GAGCGCGAAA GAACAGCTG TGGATGTGT GTCAITTAGG GTGTGAAAG TCCCAGGCT CCCCAGCAGG  
 GACTTTCTCC TTGAACCAAT CCATGGAAGA CTCCGCTTTT CTTGGTCGAC ACCTTACACA CAGTCAATCC CACACCTTTC AGGGTCCGA GGGTCTCTCC  
 2201 CAGAAGTATG CAAAGCATGC ATCTCAATTA GTCAGCAACC AGTGTGGA AGTCCCAGC CTCCCAGCA GGCAGAGTA TGAACAGCAT GCATCTCAAT  
 GTCTTCATAC GTTTCGTACG TAGAGTTAAT CAGTCGTGG TCCACACCTT TCAGGGGTCC GAGGGTCTG CCGTCTTCAAT ACGTTCCTGA CGTAGAGTTA  
 2301 TAGTCAGCAA CCATAGTCCC GCCCTAACT CCGCCCTAAC CCGCCCTAAC TCAGCCCTAG TCCGCCCCAGT TCCGCCCCCA TGGCTGACTA ATTTTITTTTAA  
 ATCAGTCGTT GGTATCAGG GGGGATTA GCGGGTAGG GCGGGATTA GCGGGGTCA AGCGGGTAA GAGGGGTCC CACACCTTTC AGGGTCCGA GGGTCTCTCC  
 2401 TTTATGCAGA GCGAGGCG CCCTCGGCT CTGAGCTATT CCAGAAGTAG TGAGGAGGT TTTTITGGAG CCTAGGCTTT TGCATAAAGC TGTITACCTCG  
 AATACGCTT CCGGCTCGG CCGGCTCGG CCGAGCCGA GACTCGATA GGTCTTCATC ACTCTCCGA AAAAACCTCC GATCCGAAA ACGTITTTTCG ACAAITGGAGC  
 2501 AGCGGCGCT TAATTAAGG GCGCATTTA AATCTGCAG GTAACAGCTT GGCACCTGGC GTCTTTTAC AACGTCTGA CTGGGAAAC CTITGGCTTAA  
 TCGCCGGCGA ATTAATTCG CCGGTAAAT TTAGAGCTC CATGTGCAA CCGTGACCG CAGCAAAATG TTGCAGCACT GACCTTTTTC GACCCCAAT  
 2601 CCAACTTAA TCGCTTGA GCACATCCCC CTTTCGCG CTTTCGCGT CTTTCGCGT AACGCAAGG CCGCACCGA TCGCTTTC AGCGGAAAG GTTGTCAACG CATTCGACTT  
 GGGTTGAAT AGCGGAACGT CGTGTAGGG GGAAGGGTC GACCGCATTA TCGCTTCTCC GGGGTGGCT AGCGGAAAG GTTGTCAACG CATTCGACTT  
 2701 TGCGGAATGG CGCTGATGC GGTATTTCT CTTAGCCAT CTGTGCGTA TTTACACCG CATACGTCAA AGCAACCTA GTACGCGCC TGTAGCGGG  
 ACGCTTACC GCGGACTACG CCAATAAAGA GGAATCGTA GACAGCCAT AAAGTGTGC GTATGCAGTT TCGTTGGTAT CATCGCGGG AATTCGCGC  
 2801 CATTAAGCG GCGGGTGTG GTGTTACG GCAGGTGAC CGTACACTT GCGAGCGCC GCGAGCGCC TACGCGCCG TCCCTTTCGT TCTTCTCTCG  
 GTAATTCGG CCGCCACAC CACCAATGG CGTCCACTG GCGATGTGA CCGTCCGGG ATCGCGGGG AGGAAAGCGA AAGAGGGAA GGAAGAGCG  
 2901 CAGGTTCCG GGTTCCTCC GTCAAGCTCT AATCGGGG CTCCCTTTAG GGTTCGAT TACTTCGAT TACTTCGAT CCGCACCTCG ACCCAAAA ACTTGTATTC  
 GTCAAGCG CCGAAGGG CAGTTCGAGA TTTAGCCCC GAGGGAATC CCAAGCTAA ATCAGCAAT GCGGTGGAG TGGGTTCCT TGAACATAA  
 3001 GGTGATGTT CAGGTAGTG GCCATCGCC TGATAGACGG TTTTCGCC TTTGACGTG GACTCCAGT TCTTTAATAG TGGACTCTTG TTTCAAACTG  
 CCACTACCA GTGCATACC CCGTAGCGG ACTATCTGCC AAAAGCGG AAACTGCAAC CTCAGGTGCA AGAATTTATC ACCTGAGAAC AAGCTTTTCA  
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 CTTGTTTGA GTTGGGATAG AGCCGATAA GAAAACTAA TATTCCTAA AACGGTAAA GCGGATTAAC CAATTTTITTA CTCGACTAAA TTGCTTTTAA  
 3201 TAACGCGAAT TTTAACAAA TATTAACTT TACATTTTA TGGTGACTC TCAGTACAA CTGCTCTGAT GCGGATAGT TAAGCAACT CCGCTATTC  
 ATTGCGCTTA AATTTGTTT ATAATTGCAA ATGTTAAAT ACCAGCTGAG AGTCATGTTA GACGAGACTA CCGGCTATCA ATTCCGTGCA GAGGATAGCT

Figure 4-2

3301 TACGTGACTG GGTCAATGGCT GCGCCCGGAC ACCCGGCAAC ACCCGCTGAC GCGCCCTGAC GGGCTGTGTCT GCTCCCGGCA TCCGCTTACCA GACAAAGCTGT  
ATGCACTGAC CCAGTACCGA CGCGGGGCTG TGGGCGGCTG CGCGGACTG CGCGGACTG CCGGAACAGA CGAGGCGCT AGCGAATGT CTCTTTCGACA

3401 GACCGTCTCC GGGAGCTGCA TGTGTCAGAG GTTTTACCGG TCATCACCGA AACGCGCGAG GCAGTATTCT TGAAGACGAA AGGCGCTGT GATACGCTTA  
CTGGCAGAG CCCTCGAGT ACACAGTCT CAAAGTGGC AGTAGTGGCT TTGCGGCTC CGTCATAAGA ACTTCTGCTT TCCCGGAGCA CTATTCGGAT

3501 TTTTATTAGG TTAATGTCTAT GATATTAATG GTTCTCTTAGA CGTCAGTGG CACTTTTCGG GGAATGTGC GCGGAACCCC TATTTCTTAA TTTTCTTAA  
AAAAATATCC AATTACAGTA CTATTATTAC CAAAGATCT GCAGTCCACC GTGAAAAGCC CCTTTACAG CGCCTTGGG ATAAACAAAT AAAAAGATTT

3601 TACATTCAAA TATGTATCCG CTCATGAGAC AATAACCCCTG ATAAATGCTT CAATAATATT GAAAAAGGAA GAGTATGAGT AATCAACATTT TCCGTGTCC  
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3701 CCTATTCCC TTTTGTGCGG CATTGTGCT TCCTGTCTT GCTCACCCAG AACGCTGTG GAAAGTAAAA GATGCTGAAG ATCAGTTGGG TCCACGAGTG  
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3801 GGTTACATCG AACTGGATCT CAACAGCGGT AAGATCCTTG AAGTCTCTG TCTCAGAAC TTCTAGAAC GGGGCTCTCT GCAAAAGGTT ACTACTGCTG AAAATTTCAA GACGATACAC

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CGCGCCATAA TAGGGCACTA CTGGGCGCCG TTCTCGTTGA GCCAGCGCG TATGTATAA GAGTCTTACT GAACCACTC ATGAGTGGTC AGTCTCTTTT

4001 GCATCTTACG GATGGCATGA CAGTAAGAGA ATTATGCAGT GCTGCCATAA CCATGAGTGA TACACTGCG GCCAACTTAC GCGAATGTG TCTGACAAAC GATCGGAGGA  
CGTAGAATGC CTACCGTACT GTCATTCTCT TAATAGTCA CGACGGTATT GGTACTCACT ATTGTGACGC CGGTGAATG AAGACTGTG CTAGCCTCTT

4101 CCGAAGGAGC TAACCGCTTT TTTGCACAAC ATGGGGATC ATGTAATCG CTTGTATGCT TGGGAACCGG AGCTCAATGA AGCCATACCA AACGACGAGC  
GGCTTCTCG ATTGGCGAAA AAACGTGTTG TACCCCTAG TACATTGAGC GGAAGTACCA ACCCTTGGCC TCGACTTACT TCGGTATGCT TCGCTGTCTG

4201 GTGACACCAC GATGCCAGCA GCAATGGCAA CAACGTGCG CAACATPATA ACTGGCGAAC TACTTACTCT AGCTTCCCG CAACAATTA TAGACTGAT  
CACTGTGCTG CTACGGTCTG GTTACCGTT GTTGCAACGC GTTGATAAT TGACCGCTG ATGAATGAGA TCGAAGGGCC GTTGTTAAAT ATCTGACCTA

4301 GGAGGCGGAT AAGTTGCGAG GACCACTTCT GCGCTCGGCC CTTCCGCTG GGTGTTTAT TCGTGATAAA TCTGGAGCG GTGAGCGTGG GTCTCGGAT  
CCTCGGCTA TTCAACGTC CTGTTGAAGA CGGAGCGCG GAAGCGCGC CGACCAATA AGCACTATT AGACCTCGGC CACTCGCAC CAGAGCGCA

4401 ATCATTTGAG CACTGGGCGC AGATGGTAAG CCTCCCGTA TCGTAGTTAT CTACACGAG GGGAGTCAGG CAACTATGGA TGAACGAAAT AGACAGATCG  
TAGTAACGTC GTGACCCCGG TCTACCATTC GGGAGGGCAT AGCATCAATA GATGTCTGC CCTCAGTCC GTTGATACCT ACTTGTCTTA TCTGTCTAGC

4501 CTGAGATAGG TGCCTCACTG ATTAAGCATT GGTAACTGTC AGACCAAGTT TACTCATATA TACTTTAGAT TGATTTAAAA CTTCATTTTT AATTTAAAA  
GACTCTATCC ACGGAGTGAC TAATTCTGTA CCAATTGACAG TCTGTTCAA ATGAGTATAT ATGAAATCTA ACTAAATTTT GAACTAAAA TTAATTTTTT

4601 GATCTAGGTG AAGATCCTTT TTGATAATCT CATGACCAAA ATCCCTTAAC GTGAGTTTTT GTTCCACTGA GGTTCAGACC CCGTACAAAA GATCAAGGA  
CTAGATCCAC TTCTAGGAAA AACTATTAGA GTACTGGTTT TAGGGAATTG CACTCAAAAG CAAGGTGACT CGCAGTCTGG GGCATCTTTT CTAGTTTCTT

4701 TCTTCTTCTG ATCCTTTTTT TCTGCGCGTA ATCTGCTGCT TCGAACAATA AAAACACCG CTACACCGG TGGTTGTGTT GCGGATCAA GAGCTACCAA  
AGAAGAACTC TAGGAAAAA AGACGGCGAT TAGACGACGA ACCTTTGTTT TTTTGTGCG GATGTGCC ACCAAACAAA CGGCCTAGTT CTGATGTGTT

4801 CTCTTTTCTC GAAGTAACT GGTTCAGCA GAGCGCAGAT ACCAAATACT GTCTTCTAG TGTAGCGCTA GTTAGGCCAC CACTTCAAAG ACTCTGTAA  
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4901 ACCGCTTACA TACCTCGCTC TGCTAATCT GTTACCAGTG GCTGTGCCA GTGGCATAA GTCTGTCTT ACCGGTTGG ACTCAAGAG ATACTTACT  
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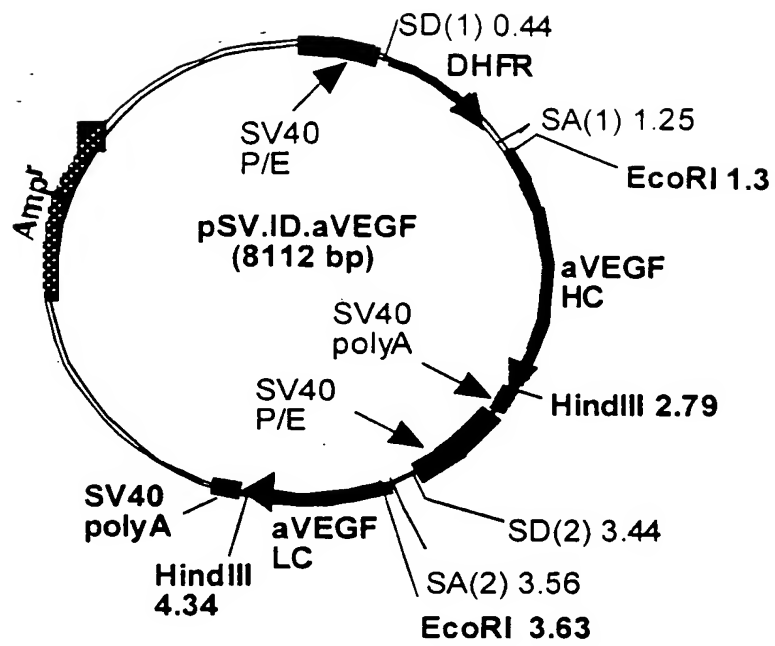
5001 GATAAGGCGC AGCGTCTGG GTTCTGTGCA CACAGCCAG CTTGGAGCGA ACGACCTACA CCGAAGTACG ATACCTACAG CGTAGCAAT

Figure 4-3

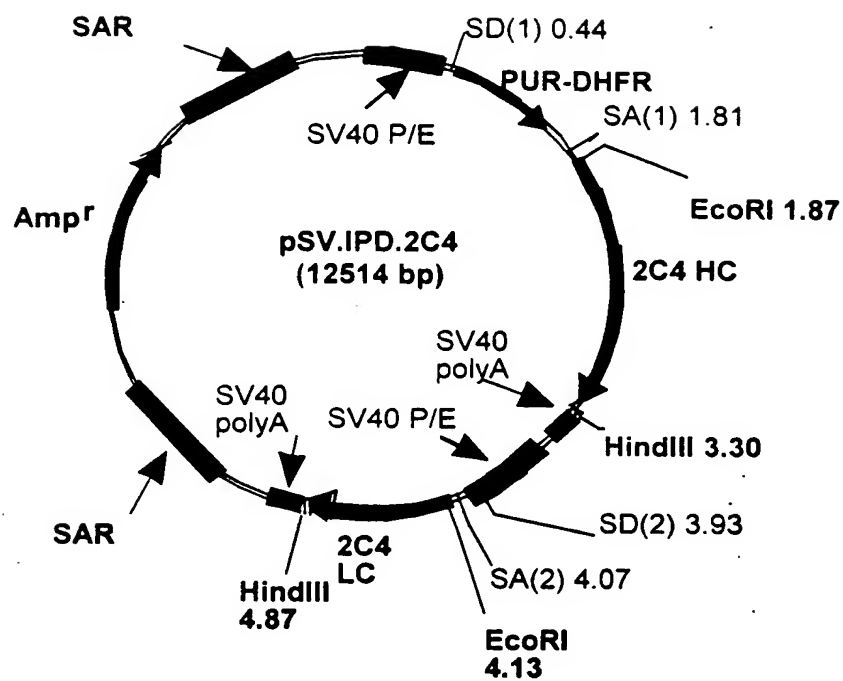
CTATTCCGCG TCGCCAGCC GACTTGCCCC CCAAGCAGGT GTGTGGGTC GAACCTCGCT TGCTGGATGT GGCTTGACTC TATGGATGTC GCAC'TCC'IAA  
 5101 GAGAAAGCGC CACGCTTCCC GAAGGAGAA AGCGGACAG GTATCCGTA AGCGGCACGG TCGGAACAGG AGAGCGCAG AGGAGCTTC CAGGGGGAAA  
 CTCTTTCCGCG GTGCGAAGG CTTCCCTCTT TCCGCTGTC CATAGGCAT TCGCGTCCC AGCCTTGTC TCTCGGTGC TCCCTCGAAG GTCCCCCTTT  
 5201 CGCCTGGTAT CTTTATAGTC CTGTGGGTT TCGCCACCTC TGACTTGAGC GTCGATTTT GTGATGCTCG TCAGGGGGG GGAGCTATG GAAAAACGCC  
 GCGGACCATA GAAATATCAG GACAGCCCA AGCGTGGAG ACTGAACTCG CAGTAAAAA CACTACGAGC AGTCCCCCG CCTCGGATAC CTTTTTCCCG  
 5301 AGCAACGCGG CTTTTTACG GTTCTGGCC TTTTGTGGC CTTTGTCTCA CATGTTCTTT CTGCGTTAT CCCCTGATTC TGTGGATAAC CGTATTTACCG  
 TCGTTGCGCC GGAATAATGC CAAGGACCG AAAACGACG GAAACGAGT GTACAAGAA GGAGGCAATA GGGACTAAG ACACCTATIG GCAT'AA'YGGC  
 5401 CCTTTGAGTG AGCTGATACC GCTGCGCGCA GCGGAACGAC CGAGCGCAGC GAGTCAGTGA GCGAGGAAGC GGAAGAGCGC CCAATACGCA AACCGGC'TCT'  
 GGAAACTCAC TCGACTATGG CGAGCGCGT CGGCTTGCTG GCTCGCGTCG CTCAGTCACT CGCTCCTTCG CCTTCTCGCG GGTATGCGT TTGGCGGAGA  
 5501 CCCCAGCGGT TGGCCGATT CATTATCCAG CTGGCAGCAG AGGTTTCCCG ACTGGAAAGC GGCAGTGAG CGCAACGCAA TTAATGTTGAG TTACCTCACT  
 GGGGCGGCA ACGGCTAAG TAATTAGGTC GACCGTCTG TCCAAAGGC TGACCTTTTCG CCGTCACTC GCGTTGCGTT AAT'TACACTC AATGGAGTCA  
 5601 CATTAGGCAC CCCAGGCTTT ACACCTTTATG CTTCGGCTC GTATGTTGTG TCGAATTGTG AGCGGATAAC AAT'TCACAC AGGAACAGC TAT'GACCA'IG  
 GTAATCCGTG GGTCCGAAA TGTGAATATC GAAGGCCGAG CATAACAC ACCTTAACAC TCCCTATTG TTAAAGTGTG TCC'TTT'GTCTG ATACTGGTAC  
 5701 ATTACGAATT AA  
 TAATGCTTAA TT

>length: 5712

Figure 4-4



**Figure 5. pSV.ID.aVEGF control plasmid**



**Figure 6. pSV.IPD.2C4**

# Figure 7

## pSV.IPD.2C4

length: 12514 (circular)

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1  TTGAGCTCG CCGACATTG ATTATTGACT AGAGTCGATC GACAGCTGTG GAATGTGTGT CAGTTAGGGT GTGGAAGTTC CCAGGCTCC CCAGGAGGCA
  AAGCTCGAGC GGGCTGTAAC TAATAACTGA TCTCAGCTAG CTGTGACAC CTTACACACA GTCAATCCCA CACCTTTTCAG GGTCCGAGG GGTCTCTCGT
101 GAAGTATGCA AAGCATGCAT CTCAATTAGT CAGCAACACAG GTGTGGAAG TCCCAGGCT CCCAGCAGG CAGAAGTATG CAAAGCATGC ATCTCAATTIA
  CTTTCATACGT TTGCTACGTA GAGTTAATCA GTGCTTGTC CACACCTTTC AGGGTCCGA GGGGTGCTCC GTCTTCATAC GTTTCGTACC TAGAGTTAAAT
201 GTCAGCAACC ATAGTCCCGC CCCTAACTCC GCCCATCCCG CCCTAACTC CGCCAGTTTC CGCCCATTTCT CGCCCCCATG GCTGACTAAAT TTTTATTATAT
  CAGTCGTTGG TATCAGGGCG GGGATTGAGG CGGGTAGGGC GGGGATTGAG GCGGTCAAG GCGGGGTAC CCACTGATTA AAAAAATAA
301 TATGCAGAGG CCGAGGCCCG CTCGGCTCT GAGCTATTCC AGAAGTAGTG AGGAGGCTTT TTTGAGGGCC TAGGCTTTTG CAAAAAGCTA GCTTATCCCG
  ATACGCTCTC GGCTCCGGCG GAGCCGGAGA CTCGATAAGG TCTTCATCAC TCCTCCGAAA AACCTCCGG ATCCGAAAAC GTTTTCGAT CGAATAGGCC
401 CCGGGAACCG TGCATTGGAA CGCGGATTCC CCGTGCCAAG AGTGACGTAA GTACCGCCTA TAGACGACT AGTCCACCAT GACCGAGTAC AAGCCACCG
  GGCCTTTGCC ACGTAACCTT CGCCTTAAGG GGCACGTTTC TCACTGCATT CATGGCGGAT ATCTCGCTGA TCAGGTGGTA CTGGCTCATG TCCGGTGGC
501 TGCGCCTCGC CACCCGGGAC GACGTCCCGC GGGCCGTAGC CACCTCGCC GCGCGTTTCG CCGACTACCC CGCCAGCGCG CACACCGTAG ACCCGGACCG
  ACCCGGAGCG GTGGGCGCTG CTGCAGGGCG CCGGGATGC GTGGAGCGG CCGGGCAAGC GGCTGATGGG GCGGTGCGCG GTGTGGCATC TCGCCCTGCG
601 CCACATCGAG CCGGTCACCG AGTGTCAAGA ACTTTCCTC AGCGCGCTCG GGCTCGACAT CGGCAAGGTG TGGGTGCGCG ACAGCGCGCG CCGGTGCGCG
  GGTGTAGCTC GCCAGTGGC TCGAGCTTCT TGAGAAGGAG TCGCGCGAGC CCGAGCTGTA GCGTTCCAC ACCCAGCGCG TGCTGCCCG GCGCCACCGC
701 GTCTGGACCA CGCCGGAGAG CGTCGAAGCG GGGCGGTGT TCGCCGAGAT CGGCCCGCG ATGCCCGAGT TGAGCGGTTT CCGGTGCGCG CCGGTGCGCG
  CAGACCTGGT CGGCCCTCTC GCAGCTTCG CCGCCGACA AGCGCTCTA CCGCGGCGG TACCGGCTCA ACTGCCAAG GCGCCACCG GCGGTGCGCG
801 AGATGGGAGG CTTCTGGCG CCGCACCGCG CCAAGGAGCG CGCGTGTCTC CTGGCCACCG TCGGCGTCTC GCGCGACAC CAGGCAAGG GTCTGGCGAG
  TCTACCTTCC GGAGGACCG GCGGTGGCG GGTCTCTCG GCGCACCAAG GACCGGTGGC AGCCGCAGAG CCGGTGCTG GTCCCGTTCC CAGACCGCTC
901 CGCGGTCTG CTCGCCGAG TGAGGGCGCG CGAGCGCGCG GGGTGGCCG CTTCTCTGGA GACCTCCCG GCGGAGCGC GSGCGTTTG AGGGAAGAT GCTCGCCGAG
  CGGCAGCAC GAGGGCCCTC ACCTCCGCG GCTCGCGCG CCGACGGCG GGAAGGACCT CTGGAGGCGC CTGGAGCGCG CCGCGCAAC TCCCTTCTA CGAGCGCTC
1001 GGCTTCACCG TCACCGCGCA CGTCGAGTGC CCGAAGGACC GCGCCACCTG GTGCTGACC CGCAAGCGCG GTGCCAAT GGTTCGACCA TTGAACCTGCA
  CCGAAGTGGC AGTGGCGGCT GCAGCTCAG GGTCTCTG GCGGTCTGG CACGTACTGG CCGTTCCGGC CAGGTTGTA CCAAGCTGGT AACCTGACCT
1101 TCGTCGCCGT GTCCCAAAAT ATGGGGATTG GCAAGAACCG AGACTACCC TGCCCTCCG TCAGGACCG GTTCAAGTAC TTCCAAAGRA TGACCACAA
  AGCAGCGCA CAGGGTTTA TACCCCTAAC CGTCTTGGC TCTGGATGG ACGGAGGCG AGTCTTGGC CAGTTTCATG AAGTTTCTT ACTCGTCTTG
1201 CTCTTCAGTG GAAGTAAAC AGAATCTGGT GATTATGGT AGGAAACCT GGTCTCTCCAT TCCTGAGAAG AATCGACCTT TAAAGGACAG AATTAATATA
  GAGAAGTCAC CTTCCATTG TCTTAGACCA CTAATACCCA TCCTTTTGGG CCAAGAGGTA AGGACTCTTC TTAGCTGAA ATTTCTCTC TTAATTAATAT
1301 GTTCTCAGTA GAGAACTCAA AGAACACCA CGAGGAGCTC ATTTTCTTGC CAAAAGTTTG GATGATGCCCT TAAGACTTAT TGAACAACCG CAATTCGCAA
  CAAGAGTCAT CTCCTGAGTT TCTTGAGTT TCTTGTTGGT GCTCCTCGAG TAAAGAAGC GTTTTCAAAC CTACTACGGA ATCTGAATA ACTTGTGGC CTTAAACCGTT
1401 GTAAAGTAGA CATGTTTGG ATAGTCGAG GCAGTCTGT TTAGCAGGAA GCCATGAATC AACAGGCCA CCTTAGACTC TTTTGTGCAA GCATCATGCA
  CATTTTCATCT GTACCAAAC TATCAGCTC CGTCAAGCA AATGGTCTT CGGTACTTAG TTGGTCCGGT GGAATCTGAG AAACACTCTT CTTAGTACCT
1501 GGAATTTGAA AGTGACACGT TTTTCCAGA AATTGATTG GGAATATA AACCTCTCCC AGAATACCCA GCGGTCTCTCT CTGAGGTCCA CGAGGAAAA

```

Figure 7-1



CCTTAAACTT TCACTGTGCA AAAAGGGTCT TTAACATAAC CCCTTTATAT TTGGAGAGGG TCTTATGGGT CGCAGGAGA GACTCCAGGT CCTCTCTTTT  
 1601 GGCATCAAGT ATAAGTTTGA AGCTTACGAG AAGAAAGACT AAGCTTAACT GCTCCCTCTCC TAAAGCTATG CATTTTATATA AGACCATGGG AC1TTTGTCTG  
 CCGTAGTTCA TATTCAAACT TCAGATGCTC TTCTTTCTGA TTGCAATTGA CGAGGGGAGG ATTTCGATAC GTAAAAATAT TCTGGTACCC TGA AAAACGAC  
 1701 GCTTTAGATC CCCTTGGCTT CGTTAGAAGC CAGCTACAAT TAATACATAA CTTTATGTAT CATACACATA CGATTTAGGT GACACTATAG AATAACATCC  
 CGAAATCTAG GGAACCGAA GCAATCTTGC GTCGATGTTA ATTATGTAT GGAATACATA GTATGTAT GCTAAATCCA CTCTGATATC TTATTTGTAGG  
 1801 ACTTTGCCCTT TCTCTCCACA GGTGTCCACT CCAGGTCCA ACTGCACCTC GGTTCCTATCG ATTGAAATCC ACCATGGGAT GGTCAATGAT CATCTCTTTT  
 TGAACCGAA AGAGAGGTGT CCACAGTGA GGGTCCAGT TGACGTGGAG CCAAGATAGC TAAC1TAAAG TGGTACCTTA CCAGTACATA GTAGGAAAAA  
 1901 CTAGTAGCAA CTGCACTGG AGTACATTCA GAAGTTGAGT GGGGGTGGC TGGGTGAGTC TGGCGGTGGC CTGGTGCAGC CAGGGGGCTC ACTCCGTTTG TCCGTGTGCAG  
 GATCATCGTT GACGTTGACC TCATGTAAGT CTTCAAGTCG ACCACCTCAG ACCGCCACCG GACCAGCTCG GTCCCCCGAG TGAGGCAAAAC AGGACACGTC  
 2001 CTTCTGGCTT CACCTTCACC GACTATACCA TGGACTGGGT CCGTCAGGCC CCGGTAAGG GCCTGGAATG GGTTCAGAT GTTAAATCCTA ACAGTGGCGG  
 GAACACCGAA GTGGAAGTGG CTGATATGGT ACCTGACCCA GGCAGTCCCG GGCCTATCC CGGACCTTAC CCAACGTCTA CAATTAGGAT TGTACCCGCC  
 2101 CTCTATCTAT AACCAGCGT TCAAGGCGG TTTCACTCTG AGTGTGACA GATCTAAAA CACATTTATAC CTGCAGATGA ACAGCCTGCG TGTGAGGAC  
 GAGATAGATA TTGGTCCGGA AGTTCGGGC AAAGTGAGAC TCACAAC1GT CTAGATTTT GTGTAATATG GACGTCTACT TGTCCGACGC ACAGTCTCTG  
 2201 ACTGCCGTCT ATTATGTGC TCGTAACTG GGACCTCTT TCTACTTTGA CTACTGGGT CAAGGAACCC TGGTACCCGT CTCCTCGGCC TCCACCAAGG  
 TGACGGCAGA TAATAACAG AGCATGGAC CCGTGGGAA AGATGAACT GATGACCCCA GTTCTCTGG ACCAGTGGCA GAGGAGCGG AGTGGTTC  
 2301 GCCATCGGT CTTCCCTCTG GCACCTCTCT CCAAGAGCAC CTCTGGGGC ACAGCGGCC TGGGTGCTT GGTCAAGGAC TACTTCCCTG AACCGGTGAC  
 CCGGTAGCCA GAAGGGGGAC CGTGGAGGA GGTCTCTGT GAGACCCCG TGTGCGCGG ACCCGACGA CCAGTCTCTG ATGAAGGGG TTGGCCAC1G  
 2401 GGTGTCTGG AACTCAGGG CCCTCAGCAG CGGCTGTCAC ACCTTCCGG CTGTCTTACA GTCTCTCAGG CTCTACTCCC TCAGCAGCGT GGTCACTCTG  
 CCACAGCAC TTGAGTCCG GGGACTGGT GCGCAGCTG TAGACCTTG ACTTAGTGT CCGGTCTTG TGGTCTCACC TGTTCTTCA ACTCGGTTT AGAACACTGT  
 2501 CCTCTAGCA GCTTGGGCAC CCAGACCTAC ATCTGCAAG TGAATCACA GCCAGCAC ACCAAGGTG ACAAGAAAGT TGAGCCAAA TCTTCTGACA  
 GCGAGATCGT CGAACCCGT GGTCTGGATG GGTCTGGATG TAGACCTTG ACTTAGTGT CCGGTCTTG TGGTCTCACC TGTTCTTCA ACTCGGTTT AGAACACTGT  
 2601 AACTCACAC ATGCCACCG TGCCAGCAC CTGAATCTCT GGGGGACCG TCAGTCTTCC TCTTCCCTCC AAAAAACG GACACCTCA TGATCTCCCG  
 TTTGAGTGT TACGGTGGC ACGGTCTGT GACTTGAGGA CCCCCCTGG AGTCAGAGG AGAAGGGGG TTTTGGGTTT CTGTGGGAGT ACTAGAGGGC  
 2701 GACCCCTGAG GTCACATGG TGGTGGTGA CGTGAGCCAC GAAGACCTG AGTCAAGTT CAACTGGTAC GTGGACGGG CACCTGCCG ACCTCCACGT ATTACGGTTT  
 CTGGGGACTC CAGTGTACCG ACCACCACT GCACCTGGTG CTTCTGGAC TCCAGTTCAA GTTGACCATG CACCTGCCG CACCTCCAGT ACCTCCCTC ATGTTACCT  
 2801 ACAAAGCCG GGGAGGAGCA GTACAACAG ACGTACCGG TGGTCAAGCT CCTCACCTG CTGCACCGG CACGTGTCTC TGACCGACTT ACCGTTCTCT TACAAGTGA  
 TGTTCGGG CCCTCTCTGT CATGTTGTG TGCATGGCC ACCAGTCCG GAGTGGCAG GACGTGTCTC TGACCGACTT ACCGTTCTCT TACAAGTGA  
 2901 AGGTCTCAA CAAAGCCCTC CCAGCCCTCA TCGAGAAAC CATCTCAA GCCAAAGGG AGCCCGGAGA ACCACAGGTG TACACCTCG CCCCATCCCG  
 TCCAGAGTT GTTTCGGGAG GGTGGGGGT AGCTCTTTG GTAGAGGTTT CCGTTTCCG TCGGGGCTCT TGGTGTCCAC ATGTGGGAG GGGGTAGGGC  
 3001 GGAAGAGATG ACCAAGRACC AGGTGACCT GACCTGGCTG GTCAAGGCT TCTATCCAG CGACATCGCC GTGGAGTGG AGAGCAATG GCAGCCGAG  
 CCTTCTCTAC TGGTCTTGG TCCAGTCGA CTGGACGGAC CAGTTTCCGA AGATAGGCTC GCTGTAGCGG CACCTCACCC TCTCGTTACC CGTCCGCC1C  
 3101 AACAACTACA AGACACGCC TCCGTGTG GACTCCGAG GCTCTTCTT CCTCTACAG AAGCTACCG TGGACAAGAG CAGGTGGCAG CAGGGAACG  
 TTGTTGATGT TCTGTGGG AGGACACGAC CTGAGGCTGC CGAGGAAGAA GGAGATGTG TTCGAGTGGC ACCTGTTCTC GTCCACCGTC GTCCCTTGC  
 3201 TCTTCTCATG CTCCGTGATG CATGAGGCTC TCACAACCA CTACAGCAG AAGAGCTCT CCCTGTCTCC GGTAATGA GTGCCACGC CCTAGAGTGG  
 AGAAGATAC GAGGACTAC GTACTCCGAG ACGTGTGGT GATGTGCGT TTCTCGAGA GGGACAGAG CCATTTTACT CACGCTGCCG GGATCTCAGC

Figure 7-2

3301 ACCTGCAGAA GCTTCGATGG CCGCATGGC CCAACTGTGT TATTGCAGCT TATAATGGTT ACAAAATAAG CAATAGCATC ACAAATTTC AATAAAGC  
TGGACGTCTT CGAAGCTACC GCGGTACCG GGTGAACAA ATAACGTGCGA ATATTACCAA TGTTTATTTC GTTTAAAGT GTTTATTTCG

3401 ATTTTTTTCA CTGCAATCTA GTTGTGGTTT GTCCAAACTC ATCAATGTAT CTATCATGT CTGATCGGG AATTAAATTCG GCGCAGCACC ATGGCCCTGAA  
TAAAAAAGT GACGTAAGAT CAACACCAAA CAGGTTTGAG TAGTTACATA GAATAGTACA GACCTAGCCC TTAATTAAGC CGCGTCGTGG TACCGGACTT

3501 ATAACCTCTG AAAGAGGAAC TTGGTTAGGT ACCTTCTGAG GCGGAAAGAA CCAGCTGTGG AATGTGTGTC AGTTAGGGTG TGGAAAGTCC CCAGGCTCCC  
TATTGGAGAC TTTCTCCTTG AACCAATCCA TGGAGACTC CGCCTTCTT GGTGACACC TTACACACAG TCAATCCCAC ACCTTTCAGG GGTCCGAGGG

3601 CAGCAGGCAG AAGTATGCNA AGCATGCATC TCAATTAGTC AGCAACCAGG TGTGGAAGT CCCCAGGCTC CCCAGCAGG AGAAGTATGC AAAGCATGCA  
GTGCTCCGTC TTCATACGTT TCGTACGTAG AGTTAATCAG TCGTTGTGTC ACACCTTTCA GGGTCCGAG GGTTCGTCG TCTTCATACG TTTTCGTACGT

3701 TCTCAATTAG TCAGCAACCA TAGTCCCGC CCTAATCTCG CCCATCTCC GGCAGATTCC GCCCATTTCT CGCCCATGCG CTGACTAAIT  
AGAGTTAATC AGTCGTTGTT ATCAGGGCGG GGATTGAGG GGTAGGGCG GGTATGAGG CGGGTAAGAG CCGGGGTACC GACTGATTAA

3801 TTTTTTATTT ATGCAGAGGC CGAGCCCGC TCGGCTCTG AGCTATTCCA GAAGTAGTGA GGAGGCTTTT TTGGAGGACT AGGCTTTTTC AAAAAAGCTAG  
AAAAATAAA TACGTCTCCG GCTCCGGCGG AGCCGAGAC TCGATAAGGT CTTTCATCACT CCTCCGAAAA ACCTCCTGA TCCGAAAAACG TTTTTCGATC

3901 CTTATCCGC CGGGAACGGT GCATTGGAAC GCGGATTCCC CGTGCCAAGA GTACGGCTAT AGAGTCTATA GGGCCACCCC CTGTCCTTCG  
GAATAGGCGG GCCTTTGCCA CGTAACCTTG CGCCTAAGGG GCACGGTCT CAGTCCATT CAGTCCGATA ATGCGGATA TCTCAGATAT CCGGTGCGG GAAACCGAAGC

4001 TTAGAACCGG GCTACAATTA ATACATAACC TTTTGGATCG ATCCTACTGA CACTGACATC CACTTTTCT TTTTCTCCAC AGGTGTCCAC TCCCAGGTCC  
AATCTTGGC CGATGTTAAT TATGTATTGG AAAACTAGC TAGGATGACT GTGACTGTAG GTGAAAAAGA AAAAGAGGTG TCCACAGGTG AGGGTCCAGG

4101 AACTGCACCT CGGTTCCGA AGTAGCTTG GGTCGATCG ATTGAATTCC ACCATGGGAT GGTATGTAT CATCCTTTT CTAGTAGCAA CTGCAACTGG  
TTGACGTGGA GCCAAGCGCT TCGATCGAAC CCGACGTAGC TAACTTAAGG TGGTACCTA CCAGTACATA GTAGGAAAA GATCATCGTT GACGTTGACC

4201 AGTACATTCA GATATCCAGA TGACCCAGTC CCGAGCTCC CTGTCCGCT CTGTGGCGA TAGGTCACC ATCAGCTGCA AGGCCAGTCA GGATGTGTCT  
TCATGTAGT CTATAGGCT ACTGGTCAG GGGCTCGAG GACAGCGGA GACACCCCT ATCCAGTGG TAGTGGACGT TCCCGTCACT CCTACACAGA

4301 AATTGGTGTG CTGGGTATCA ACAGAAACCA GGAAGCTC GAAACTACT GATTTACTCG GCTTCTTACC GATACACTGG AGTCCCTCT CGTCTCTCTG  
TAACCACAGC GGACCATAGT TGTCTTTGGT CCTTTTCGAG GCTTTGATGA CTAAATGAGC CGAAGGATGG CTATGTGACC TCAGGGAAGA GCGAAGAGAC

4401 GATCCGGTTC TGGACGGAT TTCACTCTGA CCATCAGCAG TCTGCAGCCA GAAGACTTCG CAACTTATTA CTGTCAACAA TATTATATTT ATCTTACAC  
CTAGGCCAAG ACCCTGCCTA AAGTGAGACT GGTAGTCGT AGACGTGGT CTTCTGAAGC GTTGAATAAT GACAGTTGTT ATAATATAAA TAGGAATGTG

4501 GTTTGGACAG GGTACCAAGG TGGAGATCAA ACGAACTGTG GCTGCACCAT CTGTCTTCAT CTTCGCCCA TCTGATGAGC AGTTGAAATC TGGAACTGCT  
CAAACTGTC CCATGGTTCC ACCTTAGTT TGCTTGACAC CGACGTGGTA GAAGGGCGGT AGACTACTCG TCAACTTTAG ACCTTGACGA

4601 TCTGTTGTGT GCCTGCTGRA TAACTTCTAT CCCAGAGAGG CCAAAGTACA GTGGAAGGTG GATAACGCC TCCATCCGG TAACTCCCAG GAGAGTCTCA  
AGACAACACA CGGACGACTT ATTGAAGATA GGGTCTCTCC GGTTCATGT CACTTCCAC CTATTGCGG AGGTAGGCC ATTGAGGGTC CTCTCAGT

4701 CAGAGCAGGA CAGCAAGGAC AGCACCCTACA GCCTCAGCAG CACCCTGACG CTGAGCAAG CTGACTACGA GAACACAAA GTCTACGCCT GCGAAGTCA  
GTCTCGTCT GTCTCTCTG TCGTGGATGT CCGAGTCGTG GTGGGACTGC GACTCGTTTC GTCTGATGCT CTTTGTGTTT CAGATGCGGA CGCTTCAGTG

4801 CCATCAGGGC CTGAGCTCGC CCGTCACAAA GAGCTTCAAC AGGGAGAGT GTTAAGCTTC GATGGCCGCC ATGCCCAAC TTGTATTATG CAGCTTATPAA  
GGTAGTCCG GACTCGAGC GGCAGTGT TCCCTCTCA CAATTCGAG CTACCGCGG TACCGGTTG AACAAATAAC GTCGAATATT

4901 TGGTTACAAA TAAAGCAATA GCATCACAAA TTTCAAAAT AAAGCATTTT TTTCACTGCA TTTCTAGTTGT GGTTGTCCA AACTCATCAA TGTATCTAT  
ACCAATGTTT ATTTCTGTTAT CGTAGTGT TTAAGTGT TTTCTGTA AAAGTGAGT AAGATCAACA CCAACACAGT TTGACTAGTT ACATAGAAIA

5001 CATGCTCGA TCGGGAATTA ATTCGGCGCA GCACCATGGC CTGAATAAG TTTAAACCT CTGAAAGAGG AACTTGGTTA GGTACCGACT AGTAGCAAGG  
GTACAGACCT AGCCCTTAAT TAAGCCGCT GGTGTACCG GACTTTATTC AAATTTGGA GACTTTCTCC TTGAACCAAT CCATGGCTGA TCATCGTTC

Figure 7-3

5101 TCGCCACGCA CAAGATCAAT ATTAACAATC AGTCATCTCT CTTTAGCAAT AAAAAGGTGA AAATTACAT TTTAAAAATG ACACCATAGA CGATGTA'GA  
AGCGGTGGGT GTTCTAGTTA TAATGTGTAG TCAGTAGAGA GAATCGTA TTTTCCACT TTTTAATGTA AAATTTTAC TGTGGTATCT GCTACATACT'  
5201 AAATAATCTA CTTGGAATAA AATCTAGGCA AAGAGTGCA AGACTGTTAC CCAGAAAAC'T TACAAATTGT AAATGAGAGG TTAGTGAAGA TT'T'AAAT'GAA  
TTTATTAGAT GAACCTTTAT TTAGATCCGT TTCTTCACGT TCTGACAATG GGTCTTTTGA ATGTTTAAACA TTTTACTCTCC AATCACTTCT AAATTTACTT'  
5301 TGAAGATCTA AATAAACTTA TAAATTGTGA GAGAAATTA TGAATGTCTA AGTTAATGCA GAAACGGAGA GACATACTAT ATTCTATGAAC TAAAAAGACTT'  
ACTTCTAGAT TTATTTGAAT ATTTAACACT CTCCTTAAT ACTTACAGAT TCAATTACGT CTTTGCCTCT CTGTATGATA TAAGTACTTG ATTTTCTGAA  
5401 AATATTGTGA AGGTATACTT TCTTTTCACA TAAATTTGTA GTCAATATGT TCACCCCAAA AAAGCTGTTT GTTAACTTGT CAACCTCAT'T TCAAAAATCTA  
TTATAACACT TCCATATGAA AGAAAAGTGT ATTTAAACAT CAGTTATACA AGTGGGTTT TTTCGACAAA CAAT'TGAACA GTTGGAGTAA AGTTT'TACAT  
5501 TATAGAAAGC CCAAGACAA TAACAAAAAT ATTCTTGTAG AACAAAATGG GAAAGAAATGT TCCACTAAAT ATCAAGATTT AGAGCAAGC ATGAGATG'TG  
ATATCTTTTG GGTTCCTGTT ATTGTTTTTA TAAGAACATC TTGTTTACC CTTTCTTACA AGGTGATTTA TAGTCTTAAA TCTCGTTTCG TACTCTACAC  
5601 TGGGGATAGA CAGTGAGGCT GATRAAATAG AGTAGAGTC AGAAACAGAC CCATTGATAT ATGTAAGTGA CCTATGAAAA AAATATGGCA TTTTACAAATG  
ACCCCTATCT GTCACTCCGA CTATTTTATC TCATCTCGAG TCTTTGCTG GGTAACTATA TACATTCACT GGATACTTTT TTTTATACCGT AAAATGTTAC  
5701 GGAATAATGAT GATCTTTTTC TTTT'TAGAA AAACAGGGAA ATATATTTAT ATGTAATAAA TAAAGGGGAA CCCATATGTC ATACCATACA CACAAAAAAA  
CCTTTTACTA CTAGAAAAAG AAAAATCTT TTTTGCTCCCT TATATAATA TACTTTTTT ATTTCCCTT GGTATATACAG TATGGTATGT GTGTTT'TT'  
5801 TTCCAGTGAA TTATAAGTCT AAATGGAGAA GGCAAACTT TAAATCTTTT AGAAAATAAT ATAGAAGCAT GCCATCATGA CTTTCACTGTA GAGAAAAAT'  
AAGTCACTT AATATTCAGA TTTTACCTCTT CCGTTTGA AATTAGAAA TCTTTTATTA TATCTTCGTA CGGTAGTACT GAAGTCACAT CTC'TT'TT'AA  
5901 TCTTATGACT CAAAGTCCTA ACCACAAAGA AAAGATGTTT AATTAGATTG CATGAATANT AAGACTTAT'T TTTAAAAATTA AAAAACCAAT' AAGAAAAACTC  
AGAACTACTGA GTTTCAGGAT TGGTGT'TCT TTTCTPAACAA TTAATCTAAC GTACTTATAA TTCTGAATAA AAATTTTAAAT TTTT'TGGTAA TTCTTTTTCAG  
6001 AGGCCATAGA ATGACAGAAA ATATTGCAA CACCCAGTA AAGAGAA'TG TAAATGTCAG ATTATAAAAA GAAGTCTTAC AAATCAGTAA AAAATAAAAAC  
TCCGGTATCT TACTGTCTTT TATAAACGTT GTGGGTCTAT TTCTCTAAC ATTATACGTC TAATATTTTT CTTCAGAATG TTTTACTCAT'T TTTTATTTTG  
6101 TAGACAAAAA TTTGAACAGA TGRAAGAGAA ACTCTAAATA ATCATTACAC ATGAGAAACT CAATCTCAGA AATCAGAGAA CTATCATTTG ATATACACTA  
ATCTGTTT'TT AAATTTGCT ACTTCTCTT TGAGATTTAT TAGTAATG TGACTCTTGA GTTAGAGTCT TTAGTCTCTT GATAGTAAAG TATATGCTCAT  
6201 AATTAGAGAA ATATTAAAG GCTAAGTAAC ATCTGTGGCA ATATTGATGG TATATAACCT TGATGATGATG TGATCAGAAC AGTACTTTTAC CCCATGGGCT  
TTAATCTCTT TATAATTTTC CGATTCAATG TAGACACCGT TATAACTACC ATATAATTGA ACTATACTAC ACTACTCTTG TCATGAAATG GGGTACCCGA  
6301 TCCTCCCAA ACCCTTACC CAGTATAAAT CATGACAAAT ATACTTTAA AACTTTACC CTATATCTAA CCAGTACTCC TCAAAACTGT' CAAGTCAATC  
AGGAGGGGTT TGGGAATGGG GTCATATTTA GTACTGTTTA TATGAATTT TGGTAATGG GATATAGATT GGTCAATGAG AGTTT'TGACA GTTCCAGTAG  
6401 AAAAAAAGA AAGTCTGAG GAATGTCAA AACTAAGAGG AACCCAGGA GACATGAGAA TTATATGFAA TGTGGCATTC TGAATGAGAT CCCAGAACAG  
TTTTTATCT TTTTACAGCTC CTTGACAGTT TTGATTCTCC TTGGGTCTCC CTGTACTCTT AATATACAT'T ACACCGTAAG ACTTACTCTA GGGTCTTGTCT  
6501 AAAAAAACA GTAGTAAAA AACTAATGAA ATATAAATA AGTTTGAAC'T TTAGTTTTTT TTAATAAAGA GTAGCATTTAA CACGGCAAG TCA'TT'TT'CAT  
TTTTTCTGT CATCGATTTT TTGATTACTT TATATTTAT TCAAACTTGA AATCAAAAAA AATTTTTTCT CAT'CGTAAT'T GTGCCGT'TTC AGTAAAAAGTA  
6601 ATTTTCTTG AACATTAACT ACAAGTCTAT AATTAAAAAT TTTTAAATG TAGTCTGAA CATTGCCAGA AACAGAAAGTA CAGCAGCTAT CTG'TGCTGTC  
TAATAAAGAAC TTGTAATTC TGTTCAGATA TTAATTTTAA AAAAATTTTAC ATCAGACCTT GTAACGGTCT TTAGTCTTCTAT GTCTCGATA GACACACAG  
6701 GCCTAACTAT CCATAGCTGA TTGGTCTAAA ATGAGATACA TCAACGCTCC TCCATGTTTT TTGTTTTTCTT TTTTAAATGAA AAAC'TT'TAT'T TTTTAAAGAGG  
CGATTGATA GSTATCGACT AACAGATTT TACTCTATGT AGTTGGGAGG AGGTACAAAA AACAAAAAGAA AAATTTACTT TTTTGAATAA AAAATTTCTCC  
6801 AGTTTTCAGGT TCATAGCAAA ATTGAGAGGA AGGTACATTC AAGTGAAGGA AGTTTTCCTC TATTCCTAGT TTTACTGAGAG ATTGCAATCAT' GAATGGGTGT'

Figure 7-4

TCAAAAGTCCA AGTATCGTTTT TAACTCTCCT TCCATGTAAAG TTCGACTCCT TCAAAAGGAG ATAAGGATCA AATGACTCTC TAAGTAGTA CTTTACCCACA  
 6901 TAAATTTTGT CAAATGCTTT TTCTGTGTCT ATCAATATGA CCATGTGATT TTCTTCTTTA ACCTGTTGAT GGGACAAAT ACCTTAAATG AITTTTCAAAC  
 AITTTAAACA GTTTACGAAA AAGACACAGA TAGTTATACT GGTACACTAA AAGAAGAAAT TGGACAACCTA CCCTGTTTAA TGCAATTAAC TAAAAGTTTG  
 7001 GTTGAACCAC CCTTACATAT CTGGAATAAA TTCTACTTGG TTGTGGTGA TATTTTGTGA TACATTTCTT GATTTCTTTT GCTAATATTT TGTGAAAAT  
 CAACTTGGTG GGAATGTATA GACCTTATTT AAGATGAACC AACACCACAT ATAAAAAAT ATGTAAGAAC CTAAAGAAA CGATTATAA ACAACTTTTA  
 7101 GTTTGTATCT TTGTTTCATGA GAGATATTGG TCTGTTGTTT TCTTTTCTTG TAATGTCATT TTCTAGTTCC GGTATTAAGG TAATGCTGGC CTAGTTGAAT  
 CAACATAGA AACAGTACT CTCATTAACC AGACAACAA AGAAAAGAAC ATTACAGTAA AAGATCAAGG CCATTAATCC ATTACGACCG GATCAACTTA  
 7201 GATTTAGGAA GTATTCCTC TGCTTCTGTC TTCTGAGGTA CCGCGGCGC CGCTGTTT ACAAGTCTG GACTGGGAAA ACCCTGGCGT TACCCAACTT  
 CTAATCTCTT CATNAGGGAG ACGAAGACAG AAGACTCCAT GCGCGCGCG GCGAGCAAAA TGTTGCAGCA CTGACCCCTT TGGGACGCA ATGGGTGAA  
 7301 AATCGCCTTG CAGCACATCC CCCTTTGCGC AGCTGGGTA ATAGCGAAGA GGCCCGCAC GATCGCCCTT CCAACAGTT GCGCAGCTG AATGGCGAAI  
 TTAGCGGAAC GTCGTGTAGG GGAAAGCGG TCGACGCTAT TATCGCTCT CCGGCGGTG CTAGCGGAA GGTGTGTCAA CCGCTCGGAC TTACCCGCTTA  
 7401 GCGCCCTGAT CGCGTATTTT CTCCTTACGC ATCTGTGCGG TATTTACAC CGCATACGTC AAAGCAACCA TAGTACGCG CCTGTACCG CCATTAAGC  
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 CCGCGCCAC ACCACCAATG CCGCTCGCAC TGGGATGTG AACGTCGCG GATCGCGG GAGGAAAGC GAAAGAGG AAGGAAAGC CCGTGCAAGC  
 7601 CCGGCTTTCC CCGTCAAGCT CTAATCGGG GGCTCCCTTT AGGGTTCGA TTTAGTGTCT TACGCGACCT CGACCCCAA AAACCTGATT TGGGTGATGG  
 GCGCGAAAG GGCAGTTCTGA GATTTAGCCC CCGAGGAAA TCCCAAGCT AAATCAGGA ATGCGGTGGA GCTGGGTTT TTTGAACTAA ACCCCTACC  
 7701 TTCACGTAGT GGGCATCGC CCTGATAGC GGTTTTTCG CCTTTGAGT TGGAGTCCAC GTTCTTTAAT AGTGACTCT TGTTCAAA TGAACAACA  
 AAGTGATCA CCCGCTAGC TCTGTTGAT TTCTTTTGT TATTAAGGA TTTTGCCTAT TTGTTAAAA ATGAGCTGAT TTAACAAAA TTTTAAACGCGA  
 7801 CTCAACCTTA TCTCGGGCTA TTCTTTTGT TATTAAGGA TTTTGCCTAT TTGTTAAAA ATGAGCTGAT TTAACAAAA TTTTAAACGCGA  
 GAGTTGGAT AGAGCCCGAT AAGAAAACTA AATATTTCCCT AAAACGGCTA AAGCCGGATA ACCAATTTT TACTCGACTA AATGTTT TTTTAACTGCT  
 7901 ATTTTAAAC AATATTAACG TTTACAATTT TATGTTGAC TCTAGTACA ATCTGCTCTG ATGCGGCATA GTTAAGCCAG CCGCGACAC CCGCAACACC  
 TAAAAATTGT TTATAATTG AATGTTTAA ATACCACTG AGAGTCTAT TAGACGAGAC TACGGCGTAT CAATTCGGT CAAATTCGGT GCGGTCTGG  
 8001 CCCTGACCG CCCTGACGG CTTGTCTGCT CCGCGCATCC GCTTACAGC AAGCTGTGAC CGTCTCCGG AGCTGCATGT GTCAGAGGT TTTACCCGTA  
 GCGACTGCG GCGACTGCC GAACAGACA GGGCCGTAG CGAATGCTG TCGACACTG GCAGAGGCC TCGAGGTACA CAGTCTCAA AAGTGGCAGT  
 8101 TCACCGAAC GCGGAGAGA CGAAGGGCC TCGTATAGC CCTATTTTA TAGGTTATG TCATGATAAT AATGTTTCT TAGAGTCTAG GTGGCATT  
 AGTGGCTTG CCGCTCTCT GCTTTCCCG AGCATATGC GGATAAAAT ATCCAATTAC AGTACTATTA TTACCAAGA ATCTGAGT CACCGTGAAA  
 8201 TCGGGGAAT GTGCGGGAA CCCCTATTTG TTTATTTTC TAAATACAT CAAATATGTA TCGCTCATG AGACAATAAC CCTGATAAAT GCTTCAATAA  
 AGCCCTTTA CACCGGCTT GGGGATAAC AATAAAAAG ATTTATGTA GTTTATACAT AGCGAGTAC TCTGTTATTG GGACTATTGA CGAAGTTAT  
 8301 TATTGAAAA GGAAGAGTAT GAGTATTCAA CATTTCCGT TCGCCCTTAT TCCCTTTT GCGCATTTT GCGTCTCTGT TTTTGTCTAC CCAGAAACGC  
 ATAACTTTT CTTCTCATA CTCATAAGT GTAAGGCAC AGCGGGAATA AGGAAAAA CCGCGTAAA CGGAAGGACA AAAAGGAGT GGTCTTTTGG  
 8401 TGGTGAAGT AAAAGATGCT GAAGATCAGT TGGGTGACG AGTGGTTAC ATCGAAGTGG ATCTCAACAG CGGTAAGATC CTTGAGAGTT TTTCCGCGCA  
 ACCACTTTCA TTTTCTACGA CTTCTAGTCA ACCACGTG TCACCCAAATG TAGCTTGACC TAGAGTTGTC GCATTTCTAG GAACTCTCAA AAGCGGCGCT  
 8501 AGAACGTTT CCAATGATGA GCACTTTTAA AGTTCTGCTA TGTGGCGG TATTATCCG TATTGACGCC GCGCAAGAG AACTCGGTG CCGCATACAC  
 TCTTGCAAAA GGTACTACT CGTGAAAAAT TCAAGACGAT ACACCGGCC ATAATAGGC ATAACTGCG CCGCTCTCG TTGAGCCAGC GCGTATCTG

Figure 7-5

8601 TATTCTCAGA ATGACTTGGT TGAGTACTCA CCAGTCACAG AAAAGCATCT TACGGATGGC ATGACAGTAA GAGAAATTATG CAGTGCTGCC ATAACCATGA  
ATRAGAGTCT TACTGAACCA ACTCATGAGT GGTCACTGTC TTTTCGTAGA ATGCTACCG TACTGTCAAT CTCTTAATAC GTCACGACGG TATTGGTACT

8701 GTGATAACAC TCGCGCCAAAC TTACTTCTGA CAACGATCGG AGGACCGNAG GAGCTAACCG CTTTTTTTGA CAACATGGGG GATCATGTAA CTCGCCCTTGA  
CACTATTGTG ACGCCGGTTG AATGAAGACT GTTGCTAGCC TCTGGCTTC CTCGATTGCG GAAAAACGT GTTGTAACCC CTAGTACATT GAGCGGAAC

8801 TCGTTGGGAA CCGGAGCTGA ATGAAGCCAT ACCAAGGAC GAGCGTGACA CCACGATGCC TGTAACAATG GCAACAACGT TCGGCAAACT ATTAACCTGGC  
AGCAACCCCTT GGCTCGACT TACTTCGGTA TGGTTTCTG TCGCACTGT GGTGCTACGG ACATCGTTAC CGTTCTTGA ACGCGTTGA TAATTGACCG

8901 GAACTACTTA CTCTAGCTTC CCGGCAACAA TTAATAGACT GGATGGAGC GGATAAAGTT GCAGGACCAC TTCTGCGCTC GGCGCTTCCG GCTGGCTGGT  
CTTGATGAAT GAGATCGAAG GGCGTTGTT AATTATCTGA CCTACCTCCG COTATTTCAA CGTCTGGTG AAGACGGAG CCGGGAAGG CGACCGACCA

9001 TTATTGCTGA TAAATCTGGA GCCGTGAGC GTGGTCTCG CGGTATCATT GCAGCACTGG GCCAGATGG TAAGCCCTCC CGTATCGTAG TTATCTACAC  
AATAACGACT ATTTAGACCT CGGCCACTCG CACCAGAGC GCCATAGTAA CGTCTGACC CCGTCTACC ATTCGGGAGG GCATAGCATC AATAGATGTG

9101 GACGGGAGT CAGGCAACTA TGGATGAACG AAATAGACAG ATCGCTGAGA TAGTGCTC ACTGATTAG CATTTGGTAAC TGTCAGACCA AGTTTACTCA  
CTGCCCCCTCA GTCCGTTGAT ACCTACTTGC TTTATCTGTC TAGCGACTCT ATCCACGGAG TCACTAATTC GTAACCATG ACAGTCTGGT TCAATGAGT

9201 TATATACTTT AGATTGATTT AAAACTTCAT TTTTAATTTA AAAGATCTA GGTGAAGATC CTTTTTGATA ATCTCATGAC CAAAATCCCT TAACGTGAGT  
ATATATGAAA TCTAATAAA TTTTGAAGTA AAAATTAAT TTTCTAGAT CCACCTCTAG GAAAAACTAT TAGAGTACTG GTTTTAGGGA ATTGCACCTCA

9301 TTTCTGTTCCA CTGAGCGTCA GACCCCGTAG AAAGATCAA AGGATCTTCT TGAGATCTCT TTTTCTCGG CGTAATCTGC TCGTTGCAAA CAAAAAACC  
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9401 ACCGCTACCA GCGGTGTTT GTTTGCCGA TCAAGAGCTA CCACTCTTT TTCCGAAGGT AACTGGCTTC AGCAGAGCGC AGATACCATA TACTGTCTTT  
TGGCGATGGT CGCCACCAA CAAACGGCT AGTTCTCGAT GGTGAGAAA AAGGCTTCCA TTGACCGAAG TGTCTCGG TCTATGTTT ATGACAAGAA

9501 CTAGTGTAGC CGTAGTTAGG CCACCCTTC AAGAACTCTG TAGCACCGCC TACATACCTC GCTCTGCTAA TCCTGTTACC AGTGGCTGCT GCCAGTGGCG  
GATCACATCG GCATCAATCC GGTGTTGAG TTCTTGAGAC ATCTGTCGG ATGTATGGAG CGAGACGATT AGGACAATGG TCACCCGACCA CGGTCAACCGC

9601 ATAAGTCGTG TCTTACCGG TTGGACTCAA GACGATAGTT ACCGGATAAG GCGCAGCGGT CGGGCTGAAC GGGGGTTCG TGCACACAGC CCAGCTTGA  
TATTACAGCAG AGAATGCCCC AACCTGAGTT CTGCTATCAA TGGCTATTTC CGCGTCGCCA GCCCGACTTG CCCCCAAGC ACGTGTGTCG GGTCCAAACCT

9701 GCGAACGACC TACACCGAAC TGAGATACCT ACAGCGTGAG CTATGAGAAA GCGCCACGCT TCCCGAAGGG AGAAAGCGG ACAGGTATCC GGTAAAGCGC  
CGTTTGCTGG ATGTGGCTTG ACTCTATGGA TCTCGCACTC GATACTCTTT CGCGTGCGA AGGCTTCCC TCTTTCCGCC TGTCCATAGG CCAATTCCCGC

9801 AGGCTCGGAA CAGGAGAGCG CACGAGGAG CTTCCAGGGG GAAACGCCCT GTATCTTTAT AGTCTGTGCG GGTTCGCCA CCTCTGACTT GAGCTTCGAT  
TCCAGGCCCT GTCTCTCGC GTGCTCCCTC GAAGTCCCTC CTTTGGCGAC CATAGAAAATA TCAGACAGC CCAAAGCGGT GGAGACTGAA CTGCGAGCTA

9901 TTTTGTGATG CTCGTACGGG GGGCGAGCC TATGGAAAAA GCGCAGCAAC GCGCCCTTTT TACGCTTCTT GGCCTTTTGC TGGCTTTTTC CTACATCTTT  
AAACACTAC GAGCAGTCCC CCGCCTCGG ATACCTTTT GGGTCTGTG CGCGGAAAA ATGCCAAGGA CCGGAAAAAC ACCGAAAAAC GACTGTACAA

10001 CTTTCTCGG TTATCCCTTG ATTCTGTGGA TAACCGTATT ACCGCTTTG AGTGAGCTCA TACCGCTCGC CGCAGCCGAA CGACCGAGCG CAGCGAGTCA  
GAAAGGACGC AATAGGGGAC TAAGACACCT ATTGGCATAA TGGCGGAAC TCACTCGACT ATGCGGAGCG GCGTCCGCTT GCTGGCTCGC GTGCTCAGT

10101 GTGAGCGAGG AAGCGGAAGA GCCCGGGC AAGTTCGCCA GGCACAAGAT CAATATTAAC AATCAGTCTAT CTCTCTTTAG CAATAAAAAG GTGAAAAATTT  
CACTCGCTCC TTCCGCTTCT CCGCGGCCCG TTCCAGCGGT GCGTGTCTTA GTTATAATTG TTAGTCAGTA GAGAGAAATC GTTATTTTTC CACTTTTFAA

10201 ACATTTTAAA AATGACACCA TAGACGATGT ATGAAATAA TCTACTTGA AATAAATCTA GCGAAGAGAG TGCAGACTG TTACCCAGAA AACTTACAAA  
TGTAATAATT TTACTGTGGT ATCTGTACA TACTTTTATT AGATGAACCT TTATTTAGAT CCGTTTCTTC ACGTTCTGAC AATGGTCTT TTGAATGTTT

10301 TTGTAATGA GAGTTAGTG AGATTTAAA TGAATGAAGA TCTAATAAA CTTATAAATT GTGAGAGAAA TTAAATGAATG TCTAAGTTAA TGCAGAAACG  
AACATTTACT CTCCAATCAC TTCTAAATTT ACTTACTTCT AGATTTATT GAATATTAA CACTCTCTTT AATTACTTAC AGATTCAATT ACGTCTTTTC

Figure 7-6

10401 GAGAGACATA CTATATTTCAT GAACTAAAG ACTTAATATT GTGAAGGTAT ACTTCTTTT CACATAAATT TGTAAGCAAT ATGTTACCCC CAAAAAGCT  
CTCTCTGTAT GATATAAGTA CTGATTTTC TGAATTATTA CACTTCCATA TGAAGAAAA GTGATTTAA ACATCAGTTA TACAAGTGG GTTTTTTCGA  
10501 GTTTGTAAAC TTGTCAACCT CATTTCAAAA TGPATATAGA AAGCCCAAAG ACAATAACAA AAATATTCTT GTAGAACAAA ATGGGAAAGA ATGTTCCACT  
CAACAAATTG AACAGTTGGA GTAAAGTTT ACATATATCT TTCCGGTTTC TGTTATGTT TTTATAGAA CATCTTGTTT TACCCTTTCT TACAAGGTGA  
10601 AAATATCAAG ATTTAGAGCA AAGCATGAGA TGTGTGGGA TAGACAGTGA GGCTGATAA ATAGAGTAGA GCTCAGAAC AGACCCATG ATATATGTAA  
TTTATAGTTC TAAATCTCGT TTCTGACTCT ACACACCCCT ATCTGTCACT CCGACTATTT TATCTCATCT CGAGTCTTG TCTGGGTAC TATATACATT  
10701 GTGACCTATG AAAAAATAT GGCATTTTAC AATGGGAAA TGTATCTTT TTTCTTTTTT AGAAAAACAG GGAATATPAT TTATATGTAA AAAAFAAAAG  
CACTGGATAC TTTTTTTATA CCGTAAATG TTACCCCTTT ACTACTAGAA AAAGAAAAA TCTTTTGTG CTTTATATA AATATACATT TTTTATTTTC  
10801 GGAACCCATA TGTATACCA TACACACAAA AAATTTCCAG TGAATTATA GTCTAAATGG AGAAGCAAA ACTTTAATC TTTTAGAAAA TAATATAGAA  
CCTTGGGTAT ACAGTATGGT ATGTGTGTT TTTAAGGTC ACTAATATT CAGATTACC TCTCCGTTT TGAATTTAG AAATCTTTT ATTATATCTT  
10901 GCATGCCATC ATGACTTCAG TGTAGAGAAA AATTTCTPAT GACTCAAGT CCTAACACA AAGAAAGAT TGTAAATTAG ATTGCATGAA TATTAGACT  
CGTAGGGTAG TACTGAAGTC ACATCTCTT TTAAGANA CTGAGTTTCA GGATTTGTT TCTTTTCTA ACAATTAATC TAACGTACTT ATAATCTGA  
11001 TATTTTTTAA ATTAAGAAAC CATTAAGAAA AGTCAGGCC TAGAATGACA GAAATATTT GCAACACCCC AGTAAAGAGA ATTGTAATAT GCAGATTATA  
ATAAAAAATT TAATTTTTGT GTAAITCTTT TCAGTCCGT ATCTACTGT CTTTATATA CGTTGTGGG TCATTTCTCT TAACATTATA CGTCTAATAT  
11101 AAAAGAAGTC TTACAAATCA GTAAAAATA AAAC TAGACA ARAATTGAA CAGATGAAAG AGAACTCTA AATAATCAT ACACATGAGA AACTCAATCT  
TTTTCTTCAG AATGTTTAGT CATTTTTAT TTGATCTGT TTTTAAACTT GTCTACTTTC TCTTTCAGAT TTATTAGTAA TGTGTACTCT TTGAGTTAGA  
11201 CAGAAATCAG AGAATATCA TTGCATATAC ACTAAATTAG AGAAATATTA AAGGCTAAG TAACATCTGT GGCAATATG ATGGTATATA ACCTTGATAT  
GTCTTTAGTC TCTTGATAGT AACGTATATG TGAATTAATC TCTTTATAT TTTCCGATTC ATTGTAGACA CCGTTATAAC TACCATATAT TGGAACTATA  
11301 GATGTGATGA GAACAGTACT TTACCCCATG GGCTTCTCC CCAACCCCT ACCCAGTAT AATCATGAC AAATATACTT TAAAAACCAT TACCCTATAT  
CTACACTACT CTTGTATGA AATGGGTAC CCGAAGGAGG GGTTTGGGA TGGGTCATA TTTAGTACTG TTTATATGAA ATTTTGGTA ATGGGATATA  
11401 CTAAACAGTA CTCCTCAAAA CTGTCAAGGT CATCAAAAT AAGAAAGTC TGAGAACTG TCAAACTAA GAGGAACCA AGGAGACATG AGAATTATAT  
GATTGGTCAT GAGGAGTTT GACAGTTCCA GTAGTTTTA TTCTTTTCCG ACTCCTTGAC AGTTTGAAT CTCCTTGGGT TCCTCTGTAC TCTTAATATA  
11501 GTAATGTGC ATCTGAATG AGATCCAGA ACAGAAAG AACAGTAGT AAAAACTAA TGAATATAA ATAAAGTTG AACTTTAGT TTTTAAAAA  
CATTACACCG TAAGACTTAC TCTAGGTCT TGTCTTTTC TTGTCATCGA TTTTGTGAT ACTTTATAT TATTCAAAAC TTGAATCAA AAAAAATTTT  
11601 AAGAGTAGCA TTAACACGGC AAAGTCATTT TCATATTTTT CTGAACATT AAGTACAAGT CTATAATTA AAATTTTTTA AATGTAGTCT GGAACATTGC  
TTCTCATCGT AATTTGTCCG TTTCAGTANA AGTATAAAA GAACTTGTA GAACTTGTA TTCAATGTTCA GATATTAAT TTTAAAAAT TTACATCAGA CCTTGTAAACG  
11701 CAGAAACAGA AGTACAGCAG CTATCTGTGC TGTCCCTAA CTATCCATAG CTGATTGGTC TAAATGAGA TACATCAAG CTCCTCATG TTTTGTGTTT  
GTCTTTGTCT TCATGTGTC GATAGACAG ACAGCGAT GATAGTATC GACTAACCG ATTTACTCT ATGTAGTGC GAGGAGGTAC AAAAAACAAA  
11801 TCTTTTTTAA TGAATAACTT TATTTTTTAA GAGGAGTTTC AGGTTCTATAG CAAATTTAG AGAAGGTAC ATTCAAGCTG AGAAGTTT CCTTATTC  
AGAAAAATTT ACTTTTTGAA ATAAAAAAT CTCCTCAAAG TCCAAGTATC GTTTAACTC TCCTTCCATG TAAGTCCGAC TCCTTCAAAA GGAGATAAGG  
11901 TAGTTTACTG AGAGATTGCA TCATGAATGG GTGTTAAAT TTGTCAATG CTTTCTCTGT GTCTATCAAT ATGACCATGT GATTTCTTC TTTAACCTGT  
ATCAAAATGAC TCTCTAACGT AGTACTTACC CACAATTA AACAGTTTAC GAAAAAGACA CAGATAGTTA TACTGGTACA CTAAAGAAG AAATTTGGACA  
12001 TGATGGGACA AATTACGTTA ATTGATTTT AACCGTTGAA CCACCCCTAC ATATCTGAA TAAATTTCTAC TTGGTTGTGG TGTATATTTT TTGATACATT  
ACTACCCCTGT TTAATGCAAT TAACTAAAAG TTTGCAACTT GGTGGGATG TATAGACCTT ATTTAAGATG AACCAACACC ACATATAAAA AACTATCTAA  
12101 CTGGATTC TTTTGCTAAT ATTTGTGGA AAATGTTTGT ATCTTTCTTC ATGAGAGATA TTGGTCTGTT GTTTTCTTTT CTTGTAAATGT CATTTTCTAG

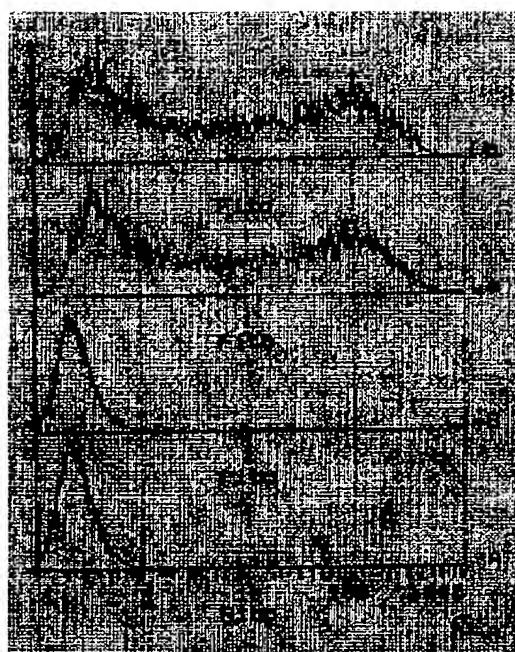
Figure 7-7

GAACCTAAGA AAAACGATTA TAAACAACCT TTTACAACA TAGAACAAG TACTCTCTAT AACAGACAA CAAAAGAAA GAACATTACA GTAAAAGATC  
 12201 TTCCGGTATT AAGTAATGC TGGCTAGTT GAATGATTTA GGAAGTATTC CCTCTGCTTC TGTCTTCTGA AGCGGAAGAG CGCCCAATAC GCAAAACCGCC  
 AAGGCCATAA TTCCATTACG ACCGATCAA CTTACTAAT CCTTCATAAG GGAGACGAAG ACAGAAGACT TCGCCTTCTC GCGGGTTATG CGTTTGGCGG  
 12301 TCTCCCCGGG CGTTGGCCGA TTCATTANTG CAGCTGGCAC GACAGGTTTC CCGACTGGAA AGCGGGCAGT GAGCGCAACG CAATTAAATGT GAGTTAGCTC  
 AGAGGGGGCG GCAACCGGCT AAGTAATTAC GTCGACCGTG CTGTCCAAG GGTGACCTT TCGCCCGTCA CTCGGTTGC GTTAATTACA CTCAAATCGAG  
 12401 ACTCATTAGG CACCCCGAGC TTTACACTTT ATGCTTCCGG CTCGTATGTT GTGTGGAATT GTGAGCGGAT AACAAATTCA CACAGGAAAC AGCTATGACA  
 TCAGTAATCC GTGGGGTCCG AATGTGNA TACGAAGGCC GAGCATACAA CACACCTTAA CACTCGCCTA TTGTTAAAGT GTGTCCTTG TCGATACTGT  
 12501 TGATTACGAA TTAA  
 ACTAATGCTT AAT

>length: 12514

Figure 7-8





**% GFP**

**% Viability  
(PI Staining)**

**70.9**

**50.2**

**68.7**

**60.9**

**1.6**

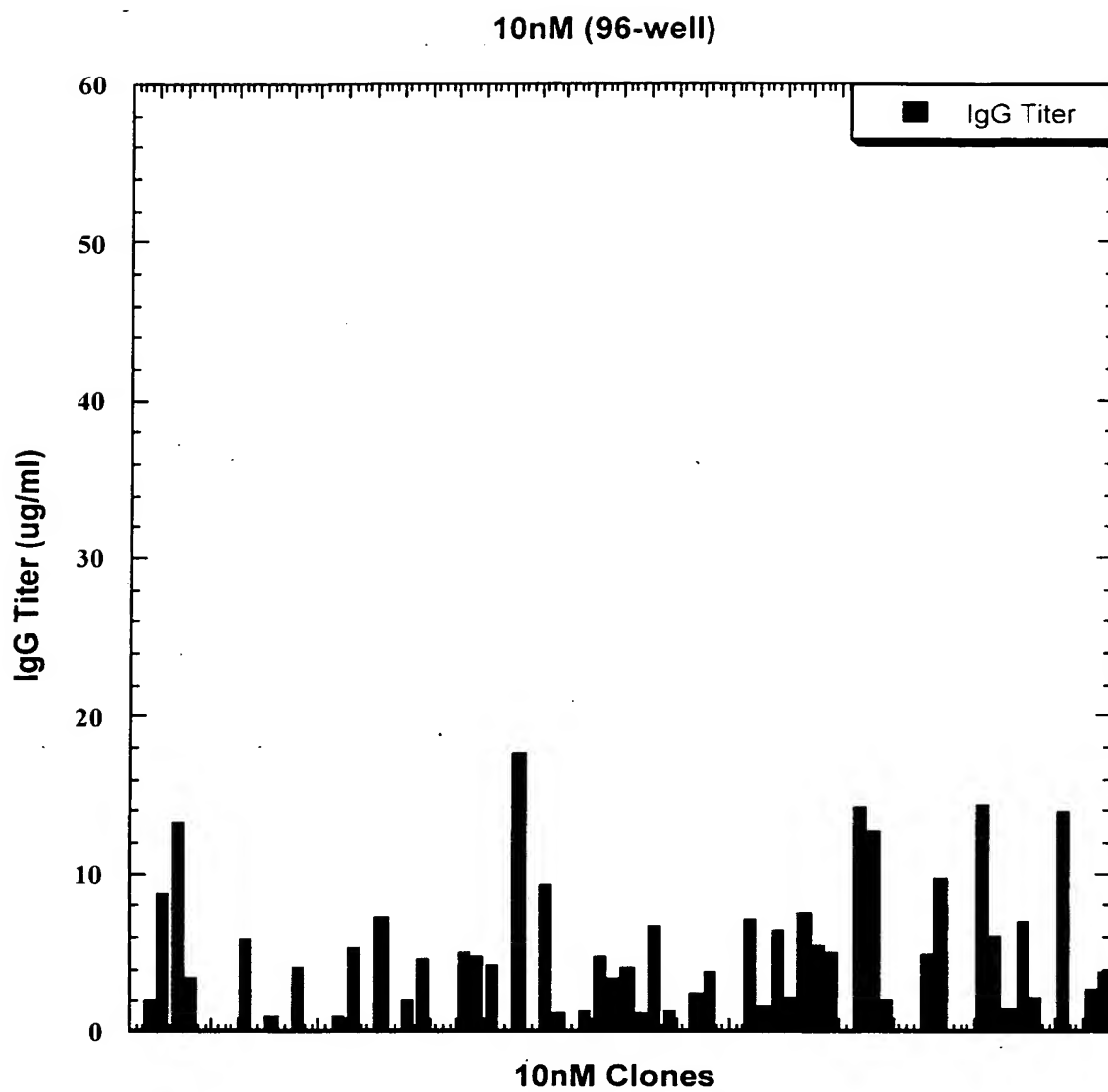
**69.7**

**1.2**

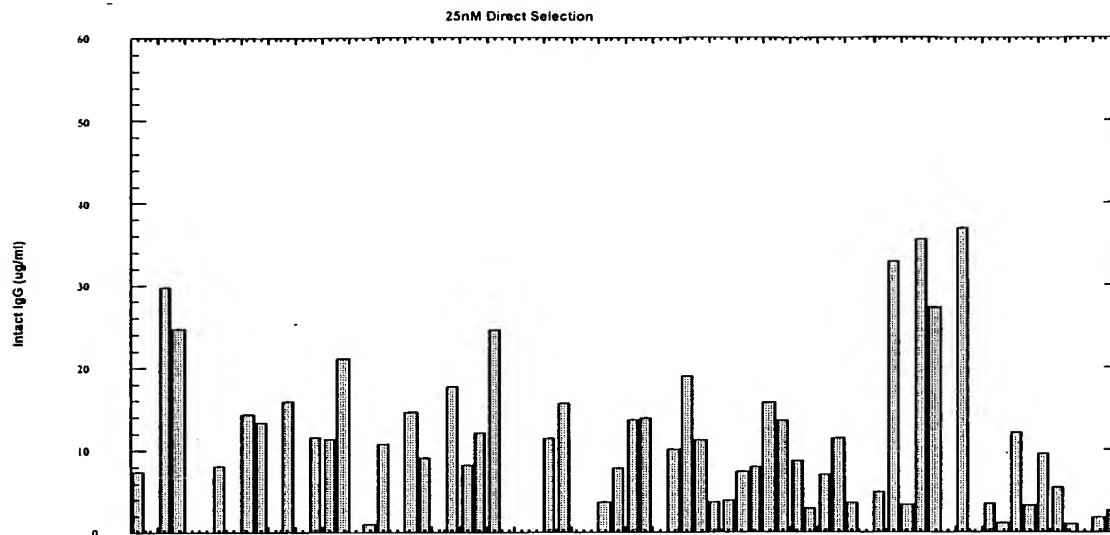
**94**

**Figure 8. FACS analysis of transiently transfected CHO cells with a GFP plasmid in 250 ml spinner transfection.**

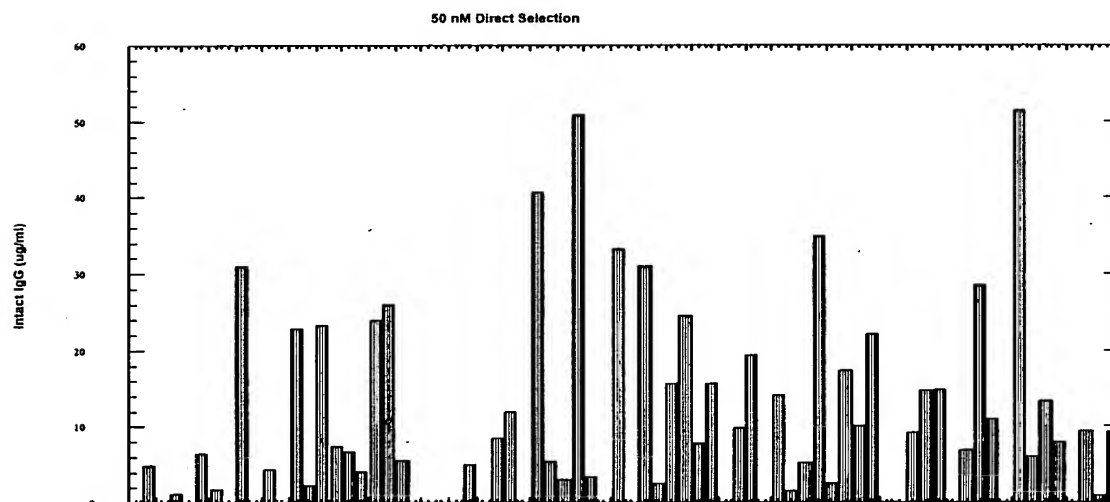




**Figure 9. Expression level of clones from traditional 10 nM MTX selection.**

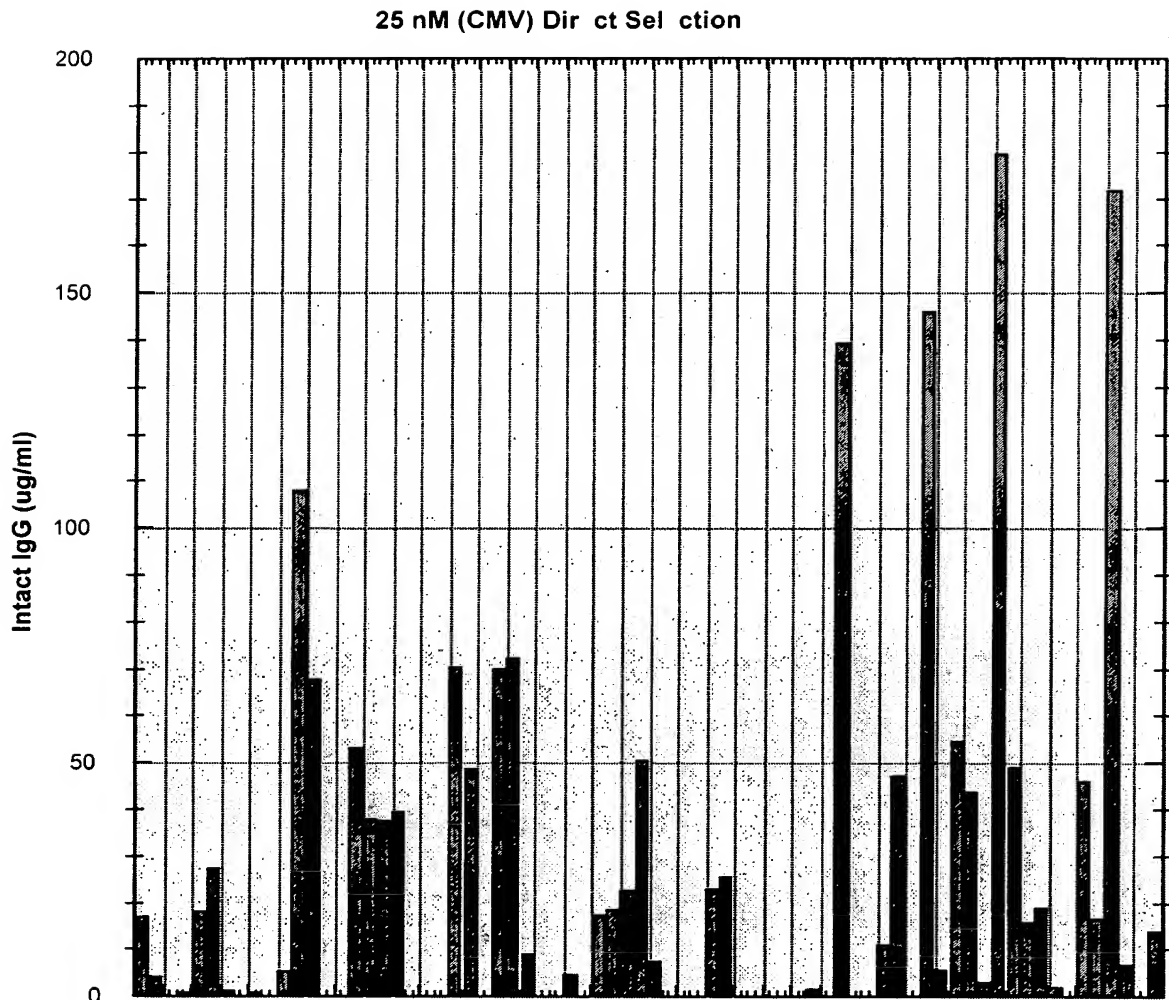


**Figure 10-1**

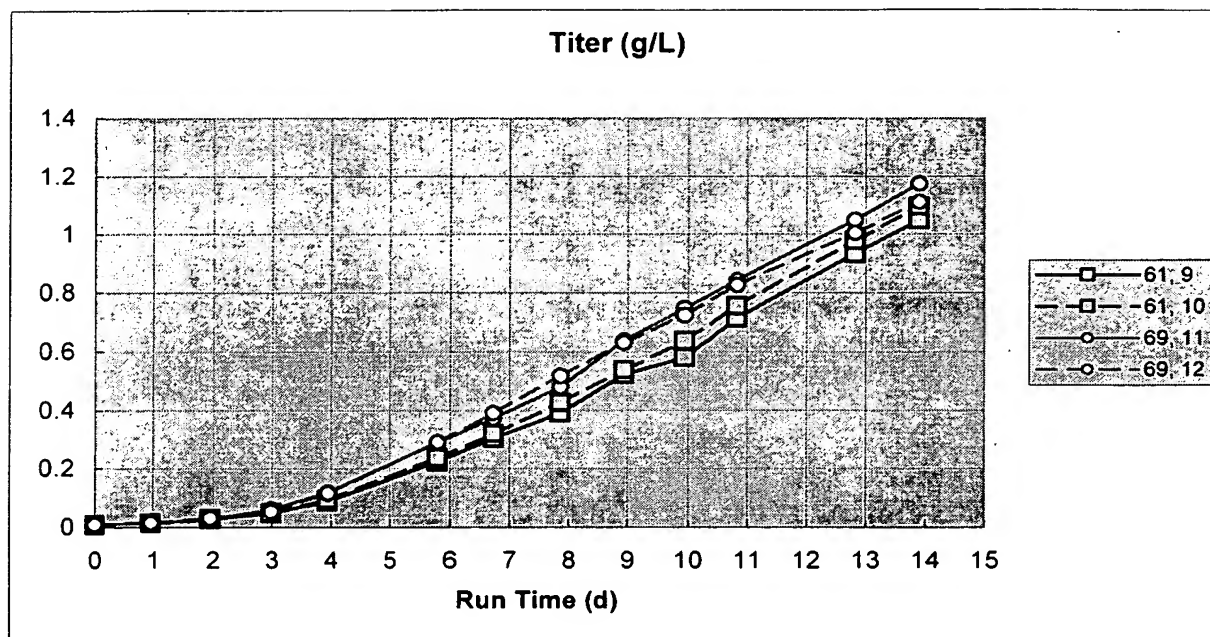


**Figure 10-2**

**Figures 10.1 and 10.2. Expression level of clones from 25 and 50 nM MTX direct selections of SV40-based constructs derived from spinner transfection, respectively.**



**Figure 11. Expression level of clones from 25 nM MTX direct selection of CMV construct derived from spinner transfection.**



**Figure 12. Titer Evaluation in Miniferm.**

**Figure 13. Plasmid pCMV.IPD.Heterologous Polypeptide**

```
5      <400>
60      TTCGAGCTCG CCCGACATTG ATTATTGACT AGAGTCGATC ACCGGTAGTA ATCAATTACG
120     GGGTCATTAG TTCATAGCCC ATATATGGAG TTCCGGCTTA CATAACTTAC GGTAAATGGC
180     CCGCCTGGCT GACCGCCCCA CGACCCCCCG CCATTGACGT CAATAATGAC GTATGTTCCC
240     ATAGTAACGC CAATAGGGAC TTTCCATTGA CGTCAATGGG TGGAGTATTT ACGGTAAACT
300     GCCCACTTGG CAGTACATCA AGTGATATCAT ATGCCAAGTA CGCCCCCTAT TGACGTCAAT
360     GACGGTAAAT GGCCCGCCTG GCATTATGCC CAGTACATGA CCTATATGGA CTTTCCTACT
420     TGGCAGTACA TCTACGTATT AGTCATCGCT ATTACCATGG TGATGCGGTT TTGGCAGTAC
480     ATCAATGGGC GTGGATAGCG GTTTGACTCA CGGGGATTTC CAAGTCTCCA CCCCATTGAC
540     GTCAATGGGA GTTTGTTTGG GCACCAAAAT CAACGGGACT TTCCAAAAATG TCGTAACAAC
600     TCCGCCCCAT TGACGCAAAAT GGGCGGTAGG CGTGACGGT GGGAGGTCTA TATAAGCAGA
660     GCTCGTTTAG TGAACCGTCA GATCGCCTGG AGACGCCATC CACGCTGTTT TGACCTGGGC
720     CCGGCCGAGG CCGCCTCGGC CTCTGAGCTA TTCCAGAAGT AGTGAGGAGG CTTTTTTGGA
780     GGCCTAGGCT TTTTGCAAAA GCTAGCTTAT CCGGCCGGGA ACGTGCATT GGAACGCGGA
840     TTCCCGGTGC CAAGAGTGAC GTAAGTACCG CCTATAGAGC GACTAGTCCA CCATGACCGA
900     GTACAAGCCC ACGGTGGGCC TCGCCACCCG CGACGACGTC CCGCGGGCCG TACGCACCCCT
```

**Figure 13.1**

960 GCGCGCCGCG TTGCGCGACT ACCCCGCCAC GCGCCACACC GTAGACCCCG ACCGCCACAT  
 1020 CGAGCGGGTC ACCGAGCTGC AAGAACTCTT CCTACGGCG GTCGGGCTCG ACATCGGGCAA  
 1080 GGTGTGGGTC GCGACGACG GCGCGCGGCT GCGGTCTGG ACCACGCCGG AGAGCGTCTGA  
 1140 AGCGGGGGCG GTGTGCGCG AGATCGGCC GCGCATGGCC GAGTTGAGCG GTTCCCGGCT  
 1200 GGCCGCGCAG CAACAGATGG AAGGCTCTCT GCGCCCGCAC CGGCCAAGG AGCCCGCGTG  
 1260 GTTCTTGGC ACCGTCGGCG TCTGCCCGA CCACCAGGC AAGGTCTGG GCAGCGCCGT  
 1320 CGTGCTCCC GGAGTGGAGG CGGCCGAGCG CGCGGGGTG CCCGCCCTTC TGGAGACCTC  
 1380 CGCGCCCCGC AACCTCCCCT TCTACGAGG GCTCGGCTTC ACCGTCACCG CCGACGTCGA  
 1440 GGTGCCCCGA GGACCGCGCA CCTGGTGCT GACCCGCAAG CCCGTGCCA ACATGGTTCT  
 1500 ACCATTGAAC TGATCGTCTG CCGTGCTCCA AAATATGGG ATTGCAAGA ACGGAGACCT  
 1560 ACCCTGGCCT CCGCTCAGGA ACGCGTTCAA GTACTTCAA AGAATGACCA CAACCTCTTC  
 1620 AGTGGGAAGT AACAGAAATC TGGTGATTAT GGGTAGGAAA ACCTGGTTCT CCATTCTCTGA  
 1680 GAAGAATCGA CCTTTAAAGG ACAGAAATTA TATAGTTCTC AGTAGAGAAC TCAAAGAACC  
 1740 ACCACGAGGA GCTCATTTTC TTGCCAAAAG TTGGATGAT GCCTTAAGAC TTATTGAACA  
 1800 ACCGGAATTG GCAAGTAAAG TAGACATGGT TTGGATAGTC GGAGGCAGTT CTGTTTACCA  
 1860 GGAAGCCATG AATCAACCAG GCCACCTCAG ACTCTTTGTG ACAAGGATCA TGCAGGAATT  
 1920 TGAAAGTGAC ACGTTTTTCC CAGAAATTGA TTGGGGGAAA TATAAACCTC TCCCAGAATA  
 1980 CCCAGGCGTC CTCTCTGAGG TCCAGGAGGA AAAAGGCATC AAGTATAAGT TTGAAGTCTA

Figure 13.2

```

2040 CGAGAAGAAA GACTAACGTT AACTGCTCCC CTCTAAAGC TATGCATTTT TATAAGACCA
2100 TGAGACTTTT GCTGGCTTTA GATCCCCTTG GCTTCGTTAG AACGCAGCTA CAATTAATAC
2160 ATAACTTAT GTATCATACA CATACGATTT AGGTGACACT ATAGAAATAAC ATCCACTTTG
2220 CCTTCTCTC CACAGGTGC CACTCCCAGG TCCAACGTCA CCTCGGTCT ATCGATTGAA

      TTCACC  --Insert Sequence of Interest--

      CGA TGGCCGCCAT GGCCCAACTT GTTTATTGCA GCTTATAATG

      GTTACAAATA AAGCAATAGC ATCACAAATT TCACAAATAA AGCATTTTTT TCACTGCATT
      CTAGTTGTGG TTTGTCCAAA CTCATCAATG TATCTTATCA TGTCTGGATC GGGAAATTAAT
      TCGGGCAGC ACCATGGCCT GAAATAACCT CTGAAAGAGG AACTTGGTTA GTACCTATT
      AATAGTAATC AATTACGGGG TCATTAGTTC ATAGCCCATATA TATGGAGTTC CGCGTTACAT
      AACTACGGT AAATGGCCCG CCTGGCTGAC CGCCCAACGA CCCCCGCCCA TTGACGTCAA
      TAATGACGTA TGTTCCCATATA GTAACGCCAA TAGGGACTTT CCATTGACGT CAATGGGTGG
      AGTATTTACG GTAAACTGCC CACTTGGCAG TACATCAAGT GTATCATATG CCAAGTACGC
      CCCCTATTGA CGTCAATGAC GGTAATGGC CCGCCTGGCA TTATGCCCAG TACATGACCT
      TATGGGACTT TCCTACTTGG CAGTACATCT ACGTATTAGT CATCGCTATT ACCATGGTGA
      TGGGTTTTG GCAGTACATC AATGGGCGTG GATAGCGGTT TGA CTCACGG GGATTTCCAA
      GTCTCCACCC CATTGACGTC AATGGGAGTT TGTTTTGGCA CCAAAATCAA CGGGACTTTC
      CAAAATGTCT TAACAACCTCC GCCCCATTGA CGCAAATGGG CGGTAGGCGT GTACGGTGGG

```

Figure 13.3

AGGTCTATAT AAGCAGAGCT CGTTTAGTGA ACGTCAGAT CGCCTGGAGA CGCCATCCAC  
 GGTGTTTTGA CCTGCTAGCT TATCCGGCCG GGAACGGTGC ATTGGAAGC GGATTCCCCG  
 TGCCAAGAGT CAGGTAAGTA CCGCCTATAG AGTCTATAGG CCCACCCCTT TGGCTTCGTT  
 AGAACGGGC TACAATTAAT ACATAACCTT TTGGATCGAT CCTACTGACA CTGACATCCA  
 CTTTTTCTTT TTCTCCACAG GTGTCCACTC CCAGGTCCAA CTGCACCTCG GTTCGGGAAG  
 CTCGCTTGGG CTGCATCGAT TGAATTCCAC C --Insert Sequence of Interest--  
 CGATGG CCGCCATGGC CCAACTTGTT TATTGCAGCT TATAATGGTT  
 ACAAATAAAG CAATAGCATC ACAAATTTCA CAAATAAAGC ATTTTTTCA CTGCATTCTA  
 GTGTGGTTT GTCCAAACTC ATCAATGTAT CTTATCATGT CTGGATCGGG AATTAATTCTG  
 GCGCAGCACC ATGGCCTGAA ATAAGTTTAA ACCCTCTGAA AGAGGAAGT GGTAGGTAC  
 CGACTAGTCT TTTGCAAAAA GCTGTTACCT CGAGCGGCCG CTTAATTAAAG GCGCGCCATT  
 TAAATCCTGC AGGTAAACAGC TTGGCACTGG CCGTCGTTTT ACAACGTCGT GACTGGGAAA  
 ACCCTGGCGT TACCCAACTT AATCGCCTTG CAGCACATCC CCCTTTCGCC AGCTGGCGTA  
 ATAGCGAAGA GGCCCGCACC GATCGCCCTT CCCAACAGTT GCGCAGCCTG AATGGCGAAT  
 GCGGCTGAT GCGGTATTTT CTCCTTACGC ATCTGTGCGG TATTTCACAC CGCATACGTC  
 AAAGCAACCA TAGTACGCGC CCTGTAGCGG CGCATTAAAGC GCGCGGGGTG TGGTGGTTAC  
 GCGCAGCGTG ACCGCTACAC TTGCCAGCGC CTAGCGCCC GCTCCTTTCG CTTTCTTCCC  
 TTCTCTTCTC GCCACGTTG CCGGCTTTCC CCGTCAAGCT CTAAATCGGG GGCTCCCTTT

Figure 13.4



AGGGTTCCGA TTTAGTGCTT TACGGCACCT CGACCCCAAA AACCTTGATT TGGTGATGG  
TTACGCTAGT GGGCCATCGC CCTGATAGAC GGTTTTTCGC CCTTTGACGT TGGAGTCCAC  
GTTCTTTAAT AGTGGACTCT TGTTCCAAAC TGAACAACA CTCAACCCTA TCTCGGGCTA  
TTCCTTTTGAT TTATAAGGGA TTTTGCCGAT TTCGGCCTAT TGGTTAAAAA ATGAGCTGAT  
TTAACAAAAA TTTAACGCGA ATTTTAACA AATATTAAAG TTTACAAATTT TATGGTGCAC  
TCTCAGTACA ATCTGTCTCTG ATGCCGCATA GTTAAGCCAG CCCCAGACAC GCCCCGACAC  
CCGCCAACAC CCGCTGACGC GCCCTGACGG GCTTGCTCTGC TCCCGGCATC CGCTTACAGA  
CAAGCTGTGA CCGTCTCCGG GAGCTGCATG TGTACAGAGT TTTCAACCGTC ATCACCGAAA  
CGCGGAGAG ACGAAAGGGC CTCGTGATAC GCTATTTTT ATAGGTTAAT GTCATGATAA  
TAATGGTTTC TTAGACGTCA GGTGGCACTT TCGGGGAAA TGTGCGCGGA ACCCCTATTT  
GTTTATTTTT CTAAATACAT TCAAATATGT ATCCGCTCAT GAGACAATAA CCTGATAAA  
TGCTTCAATA ATATTGAAAA AGGAAGAGTA TGAGTATTCA ACATTTCCGT GTCGCCCTTA  
TTCCCTTTTT TCGGGCATTT TGCCTTCCTG TTTTGTCTCA CCCAGAAACG CTGGTGAAAG  
TAAAAGATGC TGAAGATCAG TTGGGTGCAC GACTGGGTTA CATCGAACTG GATCTCAACA  
GCGGTAAGAT CCTTGAGAGT TTTCGCCCCG AAGAACGTTT TCCAATGATG AGCACTTTTA  
AAGTTCTGCT ATGTGGCGCG GTATTATCCC GTATTGACGC CGGGCAAGAG CAACTCGGTC  
GCCGCATACA CTATTCTCAG AATGACTTGG TTGAGTACTC ACCAGTCACA GAAAAGCATC  
TTACGGATGG CATGACAGTA AGAGAATTAT GCAGTGCTGC CATAACCATG AGTGATAACA

Figure 13.5

CTGCGGCCAA CTTACTTCTG ACAACGATCG GAGGACCGAA GGAGCTAACC GCTTTTTCG  
 ACAACATGGG GGATCATGTA ACTCGCCTTG ATCGTTGGGA ACCGGAGCTG AATGAAGCCA  
 TACCAAAACGA CGAGCGTGAC ACCACGATGC CTGTAGCAAT GSCAACAAACG TTGCGCAAAC  
 TATTAACCTGG CGAACTACTT ACTCTAGCTT CCCGGCAACA ATTAATAGAC TGGATGGAGG  
 CGGATAAAGT TGCAGGACCA CTTCTGCGCT CGGCCCTTCC GGCTGGCTGG TTTATTGCTG  
 ATAAATCTGG AGCCGGTGAG CGTGGGTCTC GCGGTATCAT TGCAGCACTG GGGCCAGATG  
 GTAAGCCCTC CCGTATCGTA GTTATCTACA CGACGGGGAG TCAGGCAACT ATGGATGAAC  
 GAAATAGACA GATCGCTGAG ATAGGTGCCT CACTGATTAA GCATTGGTAA CTGTCAGACC  
 AAGTTTACTC ATATATACTT TAGATTGATT TAAACTTCA TTTTAAATT AAAAGGATCT  
 AGGTGAAGAT CCTTTTGAT AATCTCATGA CCAAAATCCC TTAACGTGAG TTTTCGTCC  
 ACTGAGCGTC AGACCCCGTA GAAAAGATCA AAGGATCTTC TTGAGATCCT TTTTTCCTGC  
 GCGTAATCTG CTGCTTGCAA ACAAAAAAAC CACCGCTACC AGCGTGGTT TGTTCGCGG  
 ATCAAGAGCT ACCAACTCTT TTTCGGAAGG TAACTGGCTT CAGCAGAGCG CAGATACCAA  
 ATACTGTTCT TCTAGTGTAG CCGTAGTTAG GCCACCACTT CAAGAACTCT GTAGCACCGC  
 CTACATACCT CGCTCTGCTA ATCCTGTTAC CAGTGGCTGC TGCCAGTGGC GATAAGTCGT  
 GTCTTACCGG GTTGACTCA AGACGATAGT TACCGGATAA GGCCAGCGG TCGGGCTGAA  
 CGGGGGGTTT GTGCACACAG CCCAGCTTG AGCGAACGAC CTACACCGAA CTGAGATACC  
 TACAGCGTGA GCTATGAGAA AGCGCCACGC TTCCCGAAGG GAGAAAGGCG GACAGGTATC

Figure 13.6

CGGTAAGCGG CAGGGTCGGA ACAGGAGAGC GCACGAGGGA GCTTCCAGGG GGAACGCCT  
GGTATCTTTA TAGTCCTGTC GGGTTTCGCC ACCTCTGACT TGAGCGTCGA TTTTGTGAT  
GCTCGTCAGG GGGCGGAGC CTATGGAAAA ACGCCAGCAA CGCGGCCTTT TTACGGTTCC  
TGGCCTTTTG CTGGCCTTTT GCTCACATGT TCTTTCCTGC GTTATCCCCT GATTCTGTGG  
ATAACCGTAT TACCGCCTTT GAGTGAGCTG ATACCGCTCG CCGCAGCCGA ACGACCGAGC  
GCAGCGAGTC AGTGAGCGAG GAAGCGGAG AGCGCCCAAT ACGCAAACCG CCTCTCCCCG  
CGCGTTGGCC GATCATTAA TGCAGCTGGC ACGACAGGTT TCCCGACTGG AAAGCGGGCA  
GTGAGCGCAA CGCAATTAA GTGAGTTAGC TCACTCATTG GGCACCCCAG GCITTACT  
TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT CACACAGGAA  
ACAGCTATGA CATGATTACG AATTAA

Figure 13.7

**Figure 14. Plasmid SV40.IPD.Heterologous Polypeptide**

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6      <400>
60      TTCGAGCTCG CCCGACATTG ATTATTGACT AGAGTCGATC GACAGCTGTG GAATGTGTGT
120     CAGTTAGGGT GTGGAAGATC CCCAGGCTCC CCAGCAGGCA GAAGTATGCA AAGCATGCAAT
180     CTCAATTAGT CAGCAACCAG GTGTGGAAG TCCCCAGGCT CCCCAGCAGG CAGAAAGTATG
240     CAAAGCATGC ATCTCAATTA GTCAGCAACC ATAGTCCCGC CCTAACTCC GCCCATCCCG
300     CCCCTAACTC CGCCCAGTTC CGCCCATTTCT CCGCCCCCATG GCTGACTAAT TTTTTTTATT
360     TATGCAGAGG CCGAGGCCCGC CTCGGCCTCT GAGCTATTCC AGAAGTAGTG AGGAGGCTTT
420     TTTGAGGCC TAGGCTTTTG CAAAAGCTA GCTTATCCGG CCGGGAACGG TGCATTGGAA
480     CGCGGATTCC CCGTGCCAAG AGTGACGTAA GTACCGCCTA TAGAGCGACT AGTCCACCAT
540     GACCGAGTAC AAGCCACAGG TGCGCCTCGC CACCCGCGAC GACGTCCCGC GGGCCGTACG
600     CACCCTCGCC GCCGCGTTCT CCGACTACCC CGCCACGCGC CACACCGTAG ACCCGGACCG
660     CCACATCGAG CGGGTCACCG AGCTGCAAGA ACTCTTCCTC ACGCGCGTCG GGCTCGACAT
720     CGGCAAGGTG TGGGTCGGGG ACGACGGCGC CGCGGTGGCG GTCTGGACCA CGCCGGAGAG
780     CGTCGAAGCG GGGCGGGTGT TCGCCGAGAT CGGCCCGCGC ATGGCCGAGT TGAGCGGTTC
840     CCGGCTGGCC GCGAGAGCAAC AGATGGAAGG CCTCTGGCG CCGCACCGGC CCAAGGAGCC
900     CGCGTGGTTC CTGGCCACCG TCGGCGTCTC GCCCGACCAC CAGGGCAAGG GTCTGGGCAG

```

**Figure 14.1**

960 CGCGTCGTG CTCCCCGGAG TGGAGGCGG CGAGCGGCGG GGGGTGCCCG CCTTCTCTGGA  
 1020 GACCTCCGCG CCCCGCAACC TCCCTTCTA CGAGCGGCTC GGCTTCACCG TCACCGGCCGA  
 1080 CGTCGAGTGC CCGAAGGACC GCGGACCTG GTGCATGACC CGCAAGCCCG GTGCCAACAT  
 1140 GGTTCGACCA TTGAACTGCA TCGTCGCCGT GTCCCCAAAT ATGGGGATTG GCAAGAACGG  
 1200 AGACCTACCC TGCCCTCCGC TCAGGAACGC GTTCAAGTAC TTCCAAAGAA TGACCACAAC  
 1260 CTCTTCAGTG GAAGTAAAC AGAATCTGGT GATTATGGGT AGGAAAACCT GGTTCCTCCAT  
 1320 TCCTGAGAAG AATCGACCTT TAAAGGACAG AATTAATATA GTTCTCAGTA GAGAACTCAA  
 1380 AGAACCAACA CGAGGAGCTC ATTTCTTTC CAAAAGTTTG GATGATGCCT TAAGACTTAT  
 1440 TGAACAACCG GAATTGGCAA GTAAAGTAGA CATGGTTTGG ATAGTCGGAG GCAGTTCTGT  
 1500 TTACCAGGAA GCCATGAATC AACCAGGCCA CCTTAGACTC TTTGTGACAA GGATCATGCA  
 1560 GGAATTGAA AGTGACACGT TTTTCCCAGA AATTGATTG GGGAAATATA AACCTCTCCC  
 1620 AGAATACCCA GCGTCCTCT CTGAGGTCCA GGAGGAAAAA GGCATCAAGT ATAAGTTTGA  
 1680 AGTCTACGAG AAGAAAGACT AACGTTAACT GCTCCCCTCC TAAAGCTATG CATTTTATA  
 1740 AGACCATGGG ACTTTTGCTG GCTTTAGATC CCCTTGGCTT CGTTAGAACG CAGCTACAAT  
 1800 TAATACATAA CCTTATGTAT CATAACATA CGATTAGGT GACACTATAG ATAACATCCA  
 1860 CTTTGCCTTT CTCTCCACAG GTGTCCACTC CCAGGTCCAA CTGCACCTCG GTTCTATCGA  
 1920 TTGAATTCCA CC -Insert Sequence of Interest-  
 CGATGGCC GCCATGGCCC AACTTGTTTA TTGCAGCTTA

Figure 14.2

TAATGGTTAC AATAAAGCA ATAGCATCAC AAATTTTACA AATAAAGCAT TTTTTCAC  
 GCATTCTAGT TGTGTTTGT CCAAACATCAT CAATGTATCT TATCATGTCT GGATCGGGAA  
 TTAATTCGGC GCAGCACCAT GGCCTGAAAT AACCTCTGAA AGAGGAACCTT GGTAGGTAC  
 CTTCTGAGC GGAAGAACC AGCTGTGGAA TGTGTGTGAG TTAGGGTGTG GAAAGTCCCC  
 AGGCTCCCCA GCAGGCAGAA GTATGCAAAG CATGCATCTC AATTAGTCAG CAACCAGGTG  
 TGGAAAGTCC CCAGGCTCCC CAGCAGGCAG AAGTATGCAA AGCATGCATC TCAATTAGTC  
 AGCAACCATA GTCCCGCCCC TAACTCCGCC CATCCCGCCC CTAACCTCCG CCAGTTCGCG  
 CCATTCTCG CCCCATGGCT GACTAATTTT TTTTATTAT GCAGAGGCCG AGGCCGCCCTC  
 GGCTCTGAG CTATTCAGA AGTAGTGAGG AGGCTTTTTT GGAGGAGCTT TTGCAAAAAG  
 CTAGCTTATC CGGCGGGGAA CGGTGCATTG GAACGCGGAT TCCCCGTGCC AAGAGTCAGG  
 TAAGTACCGC CTATAGAGTC TATAGGCCCA CCCCCTTGGC TTCGTTAGAA CGCGGCTACA  
 ATTAATACAT AACCTTTTGG ATCGATCCTA CTGACACTGA CATCCACTTT TTCTTTTCT  
 CCACAGGTGT CCACTCCCAG GTCCAACTGC ACCTCGGTTT GCGAAGCTAG CTTGGGCTGC  
 ATCGATTGAA TTCCACC -Insert Sequence of Interest-  
 CGATGGCCGC CATGGCCCAA CTGTGTTTAT GCAGCTTATA ATGGTTACAA ATAAAGCAAT  
 AGCATCACAA ATTTACAAA TAAAGCATTT TTTTCACTGC ATTCTACTTG TGGTTTGTC  
 AAACTCATCA ATGTATCTTA TCATGTCTGG ATCGGGAATT AATTGCGGCG AGCACCATGG  
 CCTGAAATAA GTTTAAACCC TCTGAAAGAG GAACCTGGTT AGGTACCGAC TAGTCTTTTG

Figure 14.3

CAAAAAGCTG TTACCTCGAG CGGCCGCTTA ATTAAGGCGC GCCATTAAAA TCCTGCAGGT  
AACAGCTGG CACTGGCCGT CGTTTTACAA CGTCGTA CT GGGAAAAACC TGGCGTTACC  
CAACTTAATC GCCTTGCAGC ACATCCCCCT TTCGCCAGCT GCGTAATAG CGAAGAGGCC  
CGCACGATC GCCCTTCCCA ACAGTTGCGC AGCTGAATG GCGAATGGC CCTGATGCGG  
TATTTTCTCC TTACGCATCT GTGCGGTATT TCACACCGCA TACGTCAAAG CAACCATAGT  
ACGCGCCCTG TAGCGGCGCA TTAAGCGCG CGGGTGTGGT GGTACGCGC AGCGTGACCG  
CTACACTGC CAGCGCCCTA GCGCCCGCTC CTTTCGCTTT CTCCCTTCC TTTCTCGCCA  
CGTTGCGCG CTTTCCCGT CAAGCTCTAA ATCGGGGCT' CCCTTAGGG TTCCGATTTA  
GTGCTTTACG GCACCTCGAC CCAAAAAAC TTGATTGGG TGATGGTTCA CGTAGTGGC  
CATCGCCCTG ATAGACGGT TTTGCGCCCT TGACGTGGA GTCCACGTT TTAATAGTG  
GACTCTTGT CCAAACTGA ACAACACTCA ACCCTATCT GGGCTATTCT TTTGATTAT  
AAGGGATTT GCCGATTTTCG GCCTATTGGT TAAAAAATGA GCTGATTAA CAAAAATTTA  
ACGCGAATTT TAACAAAATA TTAACGTTTA CAATTTTATG GTGCACTCTC AGTACAATCT  
GCTCTGATC GCATAGTTA AGCCAGCCCC GACACCCGCC AACACCCGCT GACGCGCCCT  
GACGGGCTG TCTGCTCCG GCATCCGCTT ACAGACAAGC TGTGACCGT TCCGGGAGCT  
GCATGTGCA GAGTTTTCA CCGTCATCAC CGAAACGCG GACGAAAGG CCTCGTGATA  
CGCCTATTT TATAGGTTAA TGTGATGATA ATAATGGTT CTTAGACGTC AGGTGGCACT  
TTTCGGGAA ATGTGCGCG AACCCCTATT TGTTTATTT TCTAAATACA TTCAAATATG

Figure 14.4

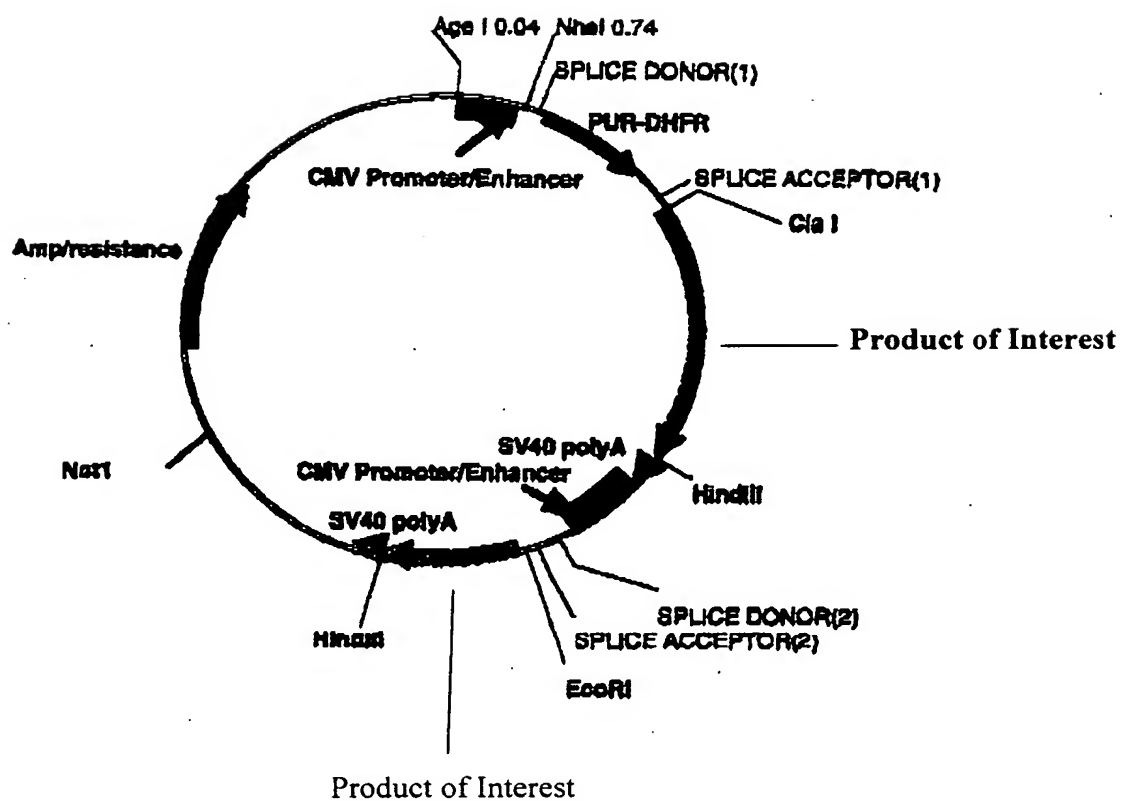
TATCCGCTCA TGAGACAATA ACCCTGATAA ATGCTTCAAT AATATTGAAA AAGGAAGAGT  
ATGAGTATTC AACATTCCG TGTCGCCCTT ATTCCCTTTT TTGCGGCATT TTGCCTTCCT  
GTTTTTGCTC ACCCAGAAAC GCTGGTGAAA GTAAAAGATG CTGAAGATCA GTTGGGTGCA  
CGAGTGGGTT ACATCGAACT GGATCTCAAC AGCGGTAAGA TCCTTGAGAG TTTTCGCCCC  
GAAGAACGTT TTCCAATGAT GAGCACTTTT AAAGTTCTGC TATGTGGCGC GGTATTATCC  
CGTATTGACG CCGGGCAAGA GCAACTCGGT CGCCGCATAC ACTATTCTCA GAATGACTTG  
GTTGAGTACT CACCAGTCAC AGAAAAGCAT CTTACGGATG GCATGACAGT AAGAGAAATTA  
TGCAGTGCTG CCATAACCAT GAGTGATAAC ACTGCGGCCA ACTTACTTCT GACAACGATC  
GGAGGACCGA AGGAGCTAAC CGCTTTTTTG CACAACATGG GGGATCATGT AACTCGCCTT  
GATCGTTGGG AACC GGAGCT GAATGAAGCC ATACCAAACG ACGAGCGTGA CACCACGATG  
CCTGTAGCAA TGGCAACAAC GTTGGGCAAA CTATTAAGTG GCGAACTACT TACTCTAGCT  
TCCCGGCAAC AATTAAATAGA CTGGATGGAG GCGGATAAAG TTGCAGGACC ACTTCTGCGC  
TCGGCCCTTC CGGCTGGCTG GTTTATTGCT GATAAATCTG GAGCCGGTGA GCGTGGGTCT  
CGCGGTATCA TTGCAGCACT GGGGCCAGAT GGTAAGCCCT CCCGTATCGT AGTTATCTAC  
ACGACGGGGA GTCAGGCAAC TATGGATGAA CGAAATAGAC AGATCGCTGA GATAGGTGCC  
TCACTGATTA AGCATTTGTA ACTGTCAGAC CAAGTTTACT CATATATACT TTAGATTGAT  
TTAAAACCTC ATTTTAAAT TAAAAGGATC TAGGTGAAGA TCCTTTTGA TAATCTCATG  
ACCAAAATCC CTTAACGTGA GTTTTCGTTT CACTGAGCGT CAGACCCCGT AGAAAAGATC

Figure 14.5



AAAGGATCTT CTTGAGATCC TTTTTTCTG CCGGTAATCT GCTGCTTGCA AACAAAAAAA  
CCACCGCTAC CAGCGGTGGT TTGTTTGCCG GATCAAGAGC TACCAACTCT TTTTCCGAAG  
GTAAGTGGCT TCAGCAGAGC GCAGATACCA AATACTGTCC TTCTAGTGTA GCCGTAGTTA  
GGCCACCACT TCAAGAACTC TGTAGCACCG CCTACATACC TCGCTCTGCT AATCCTGTTA  
CCAGTGGCTG CTGCCAGTGG CGATAAGTCG TGCTTTACCG GGTGGGACTC AAGACGATAG  
TTACCCGATA AGGCGCAGCG GTCGGGCTGA ACGGGGGGTT CGTGACACACA GCCCAGCTTG  
GAGCGAACGA CCTACACCGA ACTGAGATAC CTACAGCGTG AGCTATGAGA AAGCGCCACG  
CTTCCCGAAG GGAGAAAGGC GGACAGGTAT CCGGTAAGCG GCAGGGTCGG AACAGGAGAG  
CGCAGGAGG AGCTTCCAGG GGGAAACGCC TGCTATCTTT ATAGTCCCTGT CGGGTTTCGC  
CACCTCTGAC TTGAGCGTCG ATTTTGTGA TGCTCGTCAG GGGGGCGGAG CCTATGGAAA  
AAGCCAGCA ACGCGGCCTT TTTACGGTTC CTGGCCTTTT GCTGGCCTTT TGCTCACATG  
TTCTTTCCTG CGTTATCCCC TGATTCTGTG GATAACCGTA TTACCGCCTT TGAGTGAGCT  
GATACCGCTC GCGGCAGCCG AACGACCGAG CGCAGCGAGT CAGTGAGCGA GGAAGCGGAA  
GAGCGCCCAA TAGCCAAACC GCCTCTCCCC GCGGTTGGC CGATTCAATTA ATGCAGCTGG  
CACGACAGGT TTCCCGACTG GAAAGCGGGC AGTGAGCGCA ACGCAATTAA TGTGAGTTAG  
CTCACTCATT AGGCACCCCA GGCTTTACAC TTTATGCTTC CGGCTCGTAT GTTGTGTGGA  
ATTGTGAGCG GATAACAATT TCACACAGGA AACAGCTATG ACATGATTAC GAATTAA

Figure 14.6



**Figure 15. pCMV.IPD.HP**

## Timeline and Titer Comparison

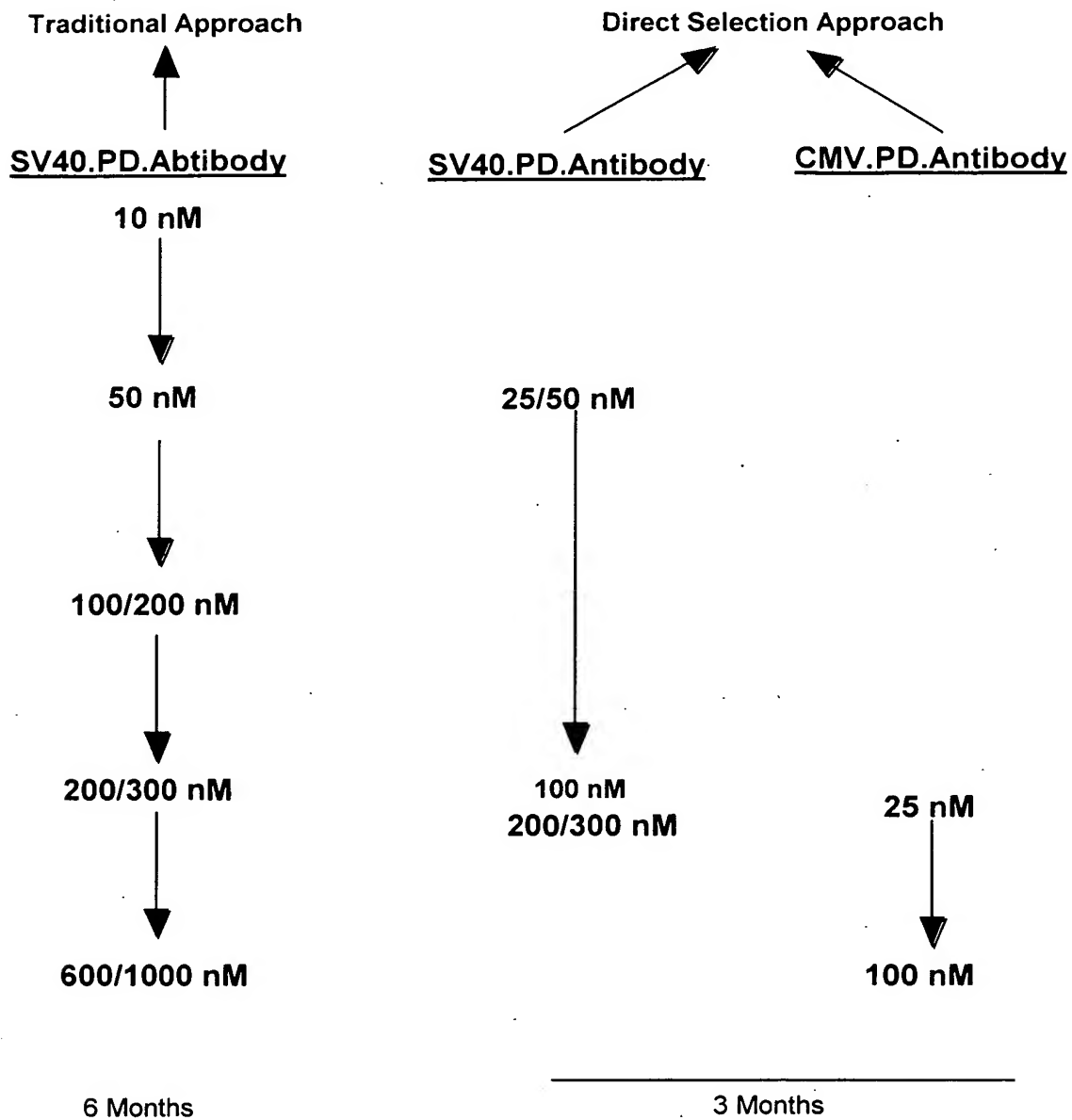


Figure 16. Timeline and Titer Comparison.